# Call-A.P.P.L.E.™

Volume 8, Number 8
August 1985

World's Largest Apple User Group Magazine

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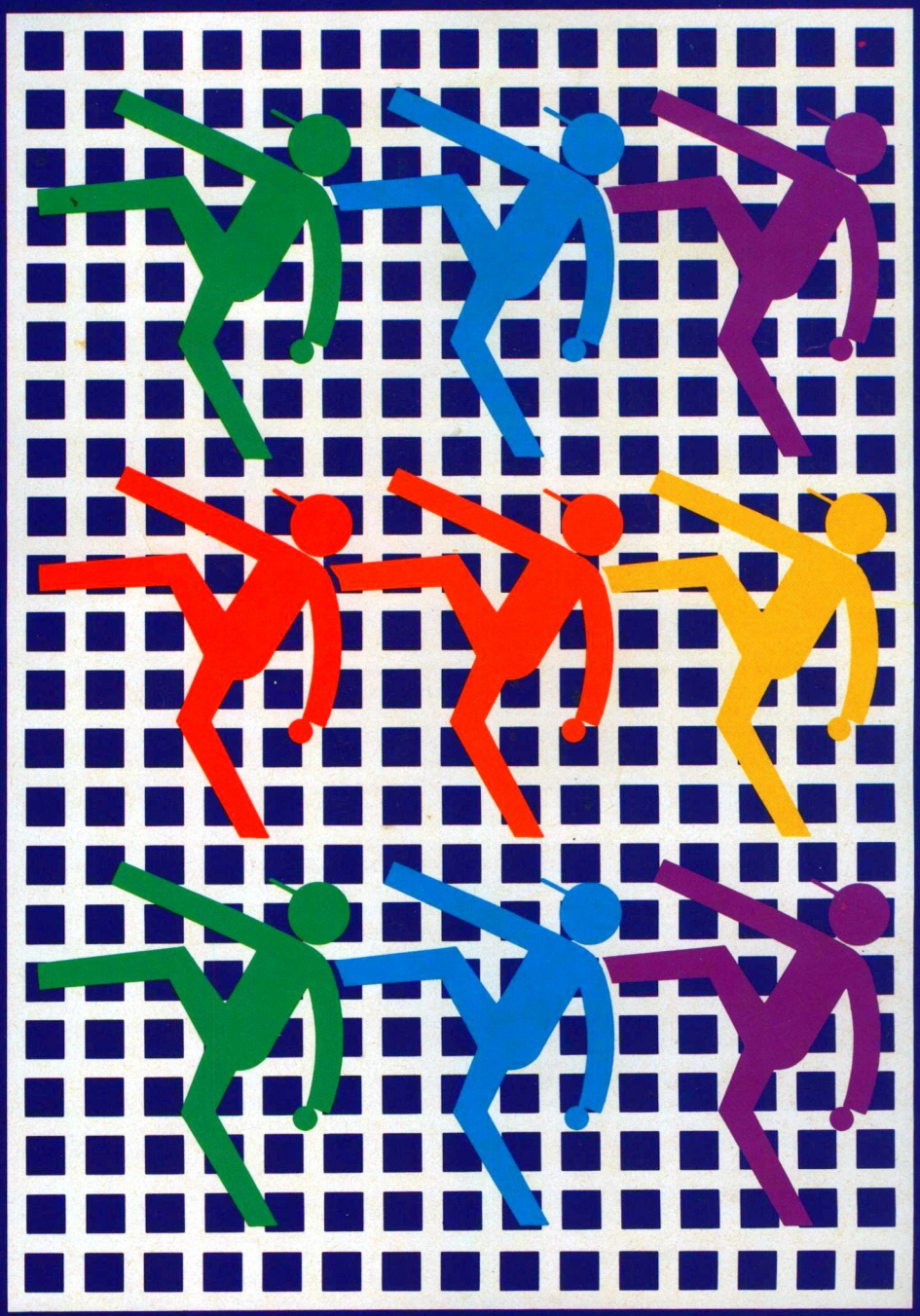
## Computers at Bat



*INSIDE:*

- Softball Spreadsheet Support
- ProDOS Technical Tips
- AppleWorks as Data Base

*MACINTOSH:*

- Review of "Ensemble"
- Lisa/Mac XL Teleconference

*PLUS:*

- Printer Interface Review
- New Products
- and more. . .

Apple PugetSound Program Library Exchange

# Why Every Serious User of an Apple IIe is Buying RAMWORKS™

**APPLEWORKS MEMORY** Even though Ramworks enhances and expands a VAST ARRAY of other programs, Appleworks is our claim to fame. A 64K Ramworks will ADD 46K to your available desktop memory, a 128K Ramworks will ADD 91K, a 256K Ramworks will ADD 182K, a 512K Ramworks will ADD 364K and a 1 meg Ramworks will give you nearly an 800K desktop. And it's all done automatically! When you plug in more memory chips into your Ramworks card, Appleworks will find them—automatically. Ramworks also increases the maximum number of records from 1350 to 4300. And should you ever create a file larger than your disk capacity, Ramworks will automatically prompt you to insert more disks, so that any size file can be saved on regular floppies or a hard disk.

**APPLEWORKS SPEED AND POWER** Ramworks does more than just increase the desktop memory (as if that weren't enough). With Ramworks, Appleworks will be able to run up to 20 times faster. If you buy a 256K or larger Ramworks card, Appleworks will automatically load itself in Ramworks. This greatly increases the speed at which Appleworks operates by eliminating all that nasty, time consuming disk access on Drive 1. These are but a few reasons why we say that Ramworks is Appleworks' best friend.

**EXPANDABILITY** Ramworks was designed with the future in mind. As your needs increase, so can Ramworks. Clear instructions show you how to plug in more memory.

**CO-PROCESSOR POWER** A memory expansion connector on Ramworks will allow future co-processor cards to access the Ramworks memory, so you'll be able to take advantage of the new 16 and 32 bit microprocessors. This connector will also allow Ramworks to be expanded another 2 megabytes, so as memory technology improves, so will Ramworks.

**SPEED** Today, as programs become more and more sophisticated, they inevitably become larger. And many of today's best selling programs (like Appleworks) won't fit in a 128K Apple, so many of these new larger programs continually go back to disk in search of more data. With Ramworks, you can have enough memory so that the entire program will be loaded into Ramworks' memory. This greatly increases the speed of software because your disk runs at 300 RPM, but Ramworks operates at the speed of light!

**COLOR** The same slot that's used for memory expansion is also the slot that's used for RGB color display, so all those lesser memory cards of yesterday make you decide in advance if you want RGB color. Ramworks lets you decide later to add RGB color. For only $129, an RGB option can be added to Ramworks to give you double high resolution color graphics and 80 column text. All with a razor sharp, vivid brilliance that's unsurpassed in the industry. The RGB option does not waste another valuable slot, but rather plugs into the back of Ramworks and attaches to any Apple compatible monitor. Remember, you can order the RGB option with your Ramworks or add it on at a later date.

**COMPATIBILITY, OF THE SOFTWARE KIND** Programs like Appleworks, Magic Office System, Flashcalc, The Spread Sheet, Diverse-A-Dos, Supercalc, Magicalc and many others automatically recognize all or most of Ramworks' memory (512K is average). The simple fact is that Ramworks is compatible with more off-the-shelf software than any other RAM card. Ramworks is 100% compatible with ALL software written for the Apple 80 column and extended 80 column card. Additionally, Ramworks can emulate other RAM cards so software written for other cards will run without modification. Software written for Ramworks will not work on other cards. We can emulate others, but others can't emulate us.

**COMPATIBILITY, OF THE HARDWARE KIND** Unlike others, Ramworks is fully compatible with hardware add on's from other companies, like the Sider and Profile hard disks. And Ramworks was designed in accordance with the official expansion rules defined by Apple so you don't have to worry about compatibility problems. As you continue to expand and make your Apple more powerful with other expansion products from Applied Engineering, you'll appreciate how each product has extra features designed to work with Ramworks and other products to give you a total performance package that is more powerful than the sum of its parts.

**IT'S POPULAR** Popularity translates into great software support because software companies can't support all RAM cards, they can only support the ones their customers are likely to own. And software companies appreciate the fact that when they write software for Ramworks in the IIe, they're also writing software for our memory expansion card for the IIc, Z-RAM. And our customer list reads like the Who's Who of Apple computing with just about every software company in the land buying one, including Apple Computer and Steve Wozniak

**IT'S FROM APPLIED ENGINEERING** Unlike most of the competition, we only make accessories for Apple, so we'll never spend your money on IBM product research. Applied Engineering's years of experience and wide product line really pays off, and because of our high sales levels we buy most of our I.C. chips factory direct. So don't let our low prices fool you, they're caused by high volume production. That's why we can offer the most memory for the least money. Guaranteed!

**IT'S GOT IT ALL**

- ☑ Sharp 80 Column Text
- ☑ Double high resolution graphics (with or without RGB option)
- ☑ User Expandable to 1 Megabyte
- ☑ Can Use 64K or 256K RAMS in any combination
- ☑ Adds Memory to Appleworks
- ☑ Accelerates Appleworks
- ☑ 100% Compatibility with All IIe software
- ☑ RAM Disk software available, compatible with Applesoft, PRO-DOS, DOS 3.3 and PASCAL ($29)
- ☑ RAM Disk available for CP/M ($29). (This program is included with our CP/M card)
- ☑ Visicalc preboot available ($29)
- ☑ RGB option
- ☑ Takes only one slot
- ☑ 5 year no hassle warranty

**OUR CUSTOMERS LIKE RAMWORKS**

"I've purchased many peripherals for my Apples over the years, but none have proved so useful as RamWorks." —Steve Wozniak

"RamWorks is incredibly great. Ten Minutes after I installed it, I gave my IBM PC, 10 Megabyte Hard Disk, FRAMEWORK and SYMPHONY to Goodwill." — S. High

"Your RamWorks card is simply a lifesaver to say the least. It worked like a breeze. I'm a sure believer in your product after thoroughly running it through the 'mill' since I've had it. I'm now considering another of your excellent products. Good luck in the future!" — M. Deming

"RamWorks is the 2nd product I've purchased from Applied Engineering. The quality and dependability of Applied Engineering products has once again been recognized, keep up the good work." — R. Lener

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| Ramworks™ with 64K | **$179** |
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| RGB Option (can be added later) | **$129** |

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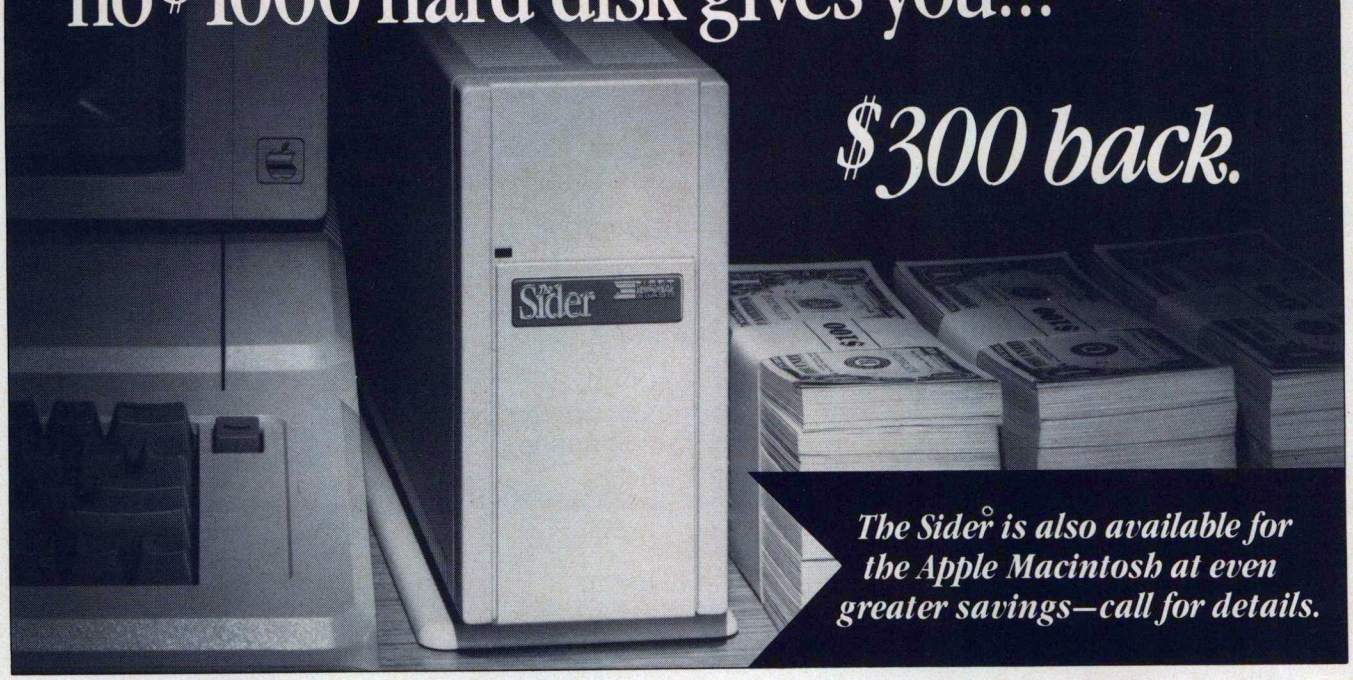
Circle 37 on Reader Service Card

# The 10 MB Sider™ gives you something no $1000 hard disk gives you...




No question about it, you can get a reliable "big name" 10 megabyte hard disk for your Apple II+ or IIe. Trouble is, you're likely to spend a small fortune for it. Because you're not just paying for the subsystem. You're also footing the bill for some hefty distribution costs, retail overhead...and the dealer's profit margin.

Happily, you now have an alternative: the 10 megabyte Sider from First Class Peripherals. This rugged, dependable hard disk offers the speed, convenience and storage capacity to meet your computing needs. But more importantly, it's sold *direct to you* for only $695—complete.

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The Sider features field-proven Winchester disk technology. Direct booting without floppies. Self-contained power supply. And compatibility with all the most popular Apple software.

What's more, the Sider is *plug and play*. You get everything you need for quick, easy installation: cables, host adapter card, software and manual.

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There's good reason for the Sider's top performance and outstanding reliability. It's designed and built exclusively for First Class Peripherals by Xebec, the industry's leading manufacturer of disk drives and controllers...and supplier to giants like IBM, Texas Instruments and HP.

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Our reassuring, money-back guarantee lets you order the Sider with confidence. Simply use it for 15 days. Then if you're not 100% satisfied, return it for a full refund. Keep the Sider and enjoy a full one-year limited warranty...plus access to our toll-free technical/service hotline.

## Get your Sider—Only $695

Enjoy the quality and performance of a $1000 hard disk—and save over $300—when you order the Sider. Simply use the coupon below. Or for faster service, order by telephone using VISA, MasterCard or American Express. Call toll-free:

**1 800 538-1307**
**Extension 222**

☐ Yes, please send me the Sider, including 10 megabyte Winchester hard disk drive, host adapter card, cable, complete installation software and documentation.

I prefer to pay as follows:

☐ I've enclosed my check or money order for $695* + $15 shipping and handling, payable to First Class Peripherals.

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Circle 53 on Reader Service Card

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Volume 8, Number 8 — August 1985


**Official Publication of A.P.P.L.E. Co-op**

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## About the Cover

Does the lure of outdoor activities tempt you to forsake your Apple for the summer? With the right software, your computer can share in the recreational pleasures and stay on the ball all year.


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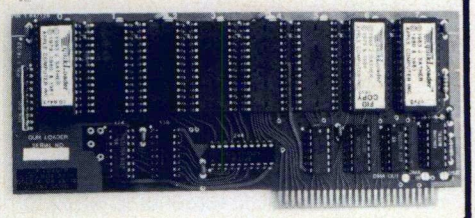
# SCRG PRODUCTS FOR THE APPLE COMPUTER

SOUTHERN CALIFORNIA RESEARCH GROUP

## quikLoader™



designed by Jim Sather

- **Instantly** loads DOS.
- **Instantly** loads programs.
- Stores up to 512K of programs on **EPROM.**
- Stores and catalogs up to 255 programs.
- Directions included to load your own software (requires **EPROM** programmer card).
- Plugs into any slot of the APPLE ][+ or //e.
- Uses standard 27 series **EPROM**s up to 27512.
- Allows turnkey operation.
- Commercial programs available.
- Includes **DOS, FID, COPYA,** and Integer.

The benefits of **quikLoader**™ start when you turn on the computer. Standard DOS is *instantly* loaded . You may then catalog the programs available on the card by pressing **Q-reset**. Typing the index letter that appears on the left of the program name causes that program to be *immediately* loaded. We start your library of programs with the most popular utilities on **EPROM**, **FID** and **COPYA.** Now, if you have to copy a disk, you don't have to search for the master disk. You can start copying within **3** seconds after powering on.

Saving your own programs onto **EPROM** (**E**raseable **P**rogrammable **R**ead **O**nly **M**emory) is easily done, using a seperate **EPROM** programer, (such as the **PROmGRAMER**™). For APPLESOFT™, Integer, or single machine language files, no programming knowledge is necessary. You will need experience if you want to save copy-protected or complex programs. The amount of experience necessary depends on the complexity of the program.

**SYSTEM REQUIREMENTS**

The quikLoader plugs into any slot of the ][, ][+, or //e. If installed in a ][+, a slightly modified 16K card in slot Ø is suggested. A disk drive is required to save data.

**$179.50**

DOS, Integer basic, FID, and COPYA are copyrighted programs of APPLE COMPUTER INC. licensed to SOUTHERN CALIFORNIA RESEARCH GROUP to distribute for use only in combination with quikLoader.

## PROmGRAMER

designed by Bob Brice — software by Bob Sander-Cederlof

**The PROmGRAMER™ will read or program any of the standard single voltage EPROMS, from the 2708 to the 27512. Features include:**

- Slot independent operation for the APPLE // family of computers.
- Zero-insertion force sockets accepts 24 or 28 pin devices.
- Choice of standard or fast programming algorithms.
- Disk-based software allows easy customization of software
- Source code included.
- Complete instructions for loading **PROmGRAMER** software into **quikLoader™.**

**$149.50**

## EXTEND-A-SLOT

**$34.95**

The **EXTEND-A-SLOT** brings a slot outside your APPLE™, allowing an easy change of cards. The 18" flex cable is long enough to allow placement of the card in a convenient location. The high quality connectors are gold plated for reliability.

EASY TO USE—just plug it in as you would any expansion card, then plug your card in. When you want to change cards, do it easily outside the computer, without the wear and tear on the computer expansion slot.

## SWITCH-A-SLOT

**$179.50**

designed by Joy George

The **SWITCH-A-SLOT** is an expansion chassis, which allows the user to plug in up to four peripheral cards at one time. One of these cards is selected for use, and only that card draws power.

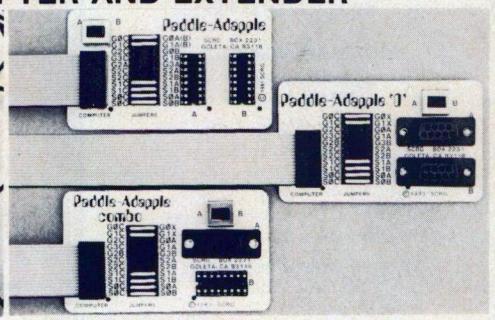
This product is especially useful where the software requires the printer to be in a particular slot, and the user wishes to choose between two or more printers.

- User selects desired card by front panel rotary switch.
- Plugs into any peripheral slot
- Saves wear and tear on delicate connectors.
- 18" cable connects SWITCH-A-SLOT to computer.
- Resistive terminations for better response.

**SWITCH-A-SLOT and EXTEND-A-SLOT work well with most slow to medium speed cards, such as Modems, Printers, Clock, 80 Column, Music, etc. They are not recommended for high speed data transfer devices such as disk drive controllers, alternate processor, and memory cards. We cannot guarantee that these products will work with a particular system. We do have a money-back guarantee if it does not work for you.**

## Paddle-Adapple

### GAME I/O ADAPTER AND EXTENDER




- Works with all APPLE™ compatible joysticks, paddles, and most other I/O devices.
- Select one of two devices or...
- Use two joysticks simultaneously
- Suggested for **One-on-One™**, **Archon™**, etc.
- Unique "JUMPERS" socket allows you to configure to meet your needs.
- Plugs into internal 16-pin game I/O port.
- Small and compact. Adhers to computer with supplied foam tape.
- All strobes, annunciators and power available on all 16 pin sockets.
- Supplied with 18" cable. **$29.95**

The **PADDLE-ADAPPLE** has two 16-pin sockets.

The **PADDLE-ADAPPLE 'D'** has two 'D' sub-miniature connectors.

The **PADDLE-ADAPPLE COMBO** has one 16-pin socket, and one sub-miniature connector.

## NEW PRODUCTS

### SLOT 3 CLOCK

Designed by Chuck Shaffer

for APPLE //e

- Fully supports **PRODOS™** . •APPLESOFT™ compatible.
- Designed for slot 3 (usually otherwise unusable).
- Time and date-stamp files under PRODOS.
- Long-life lithium battery included.
- Installation software included.

**$79.50**

### DUAL KEYBOARD ADAPTER

For Apple ][ and ][+ only.

Allows the use of the built-in keyboard or external keyboard with no switching necessary. **$39.50**

### //c keypad

This kit will give you an "embedded" keypad within your built-in keyboard. You may instantly switch between the keypad or the standard keyboard. **CAUTION** – Requires dis-assembly of the computer, and expert de-soldering and soldering ability. **$29.95**

**OTHER PRODUCTS**

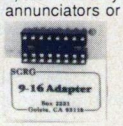
**D MA**NUAL CONTROLLER: Gives complete control over the $CØØØ through $CØFF range in hardware. Think of it as a hardware switch for soft switches. Can be switched while program is running. **$89.50**

MAGIC KEYBOARD (for ][ or ][+ only) Re-encodes the keyboard to give alternate keyboards, such as DVORAK, A.S.K., 10-KEY, HEXADECIMAL KEYPAD, etc. **$49.50**

## 9-16 Adapter

**For Apple //e and //c**

This product permits the use of most 16 pin I/O devices with the APPLE //c or //e. By plugging this adapter into the sub-miniature 'D' connector, (in back of the computer), you can plug in a 16-pin device, such as the PADDLE-ADAPPLE, paddles, joystick, KOALA PAD™, etc. The only limitations are those devices that use the annunciators or the CØ4Ø strobe, such as the POWER PAD™. Please note that the //c does not support 2-joystick games.




**$14.95**

## 16-9 Adapter

**For Apple ][+ or //e**

This product permits the use of all 9-pin game I/O devices with the APPLE ][+. By plugging this adapter into the internal 16-pin connector, you can plug in any 9-pin game game device, such as paddles, joysticks, KOALA PAD™, Muppet Learning Keys™, etc. **$14.95**

*Available at your local dealer or direct from:*

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# The INNER CIRCUIT

**Don Elman**

## HOME RUN Fever

Surely the developers of Applesoft did their creative thinking during the spring and summer months. How else could we explain the proliferation of baseball terms within the language? Consider this excerpt from a hypothetical sportscast:

> IF the NEW, third-STRING pitcher hadn't PEEKed at the scoreboard DATA, THEN he might have READ the catcher's INPUT and NOT LET the RUNner GOTO HOME without STOPping. ON the other hand, the NEXT batter could GET a fly to LEFT$ OR RIGHT$ field FOR an OUT (OF MEMORY) that ENDs the IN-Ting, SAVEs the game, AND RESTOREs the team's faith in the coach's CALLS.

Well, regardless of the BASIC creators' conscious intentions, the fact remains that our national pastime—and most other team sports, for that matter—involves the collection and organization of huge amounts of data. First, there are the names, ages, and positions of all the players to keep straight. Then the outcome of every turn at bat must be recorded and later figured into a batting average. Also, each field play must be documented to become part of every player's cumulative performance record. A single game may well generate hundreds, even thousands of pieces of information to be stored and manipulated—not to mention the seasonal scheduling and win/loss records for all teams in a league.

To be sure, sports statisticians apparently got along all right before computers; and many purists may prefer the old paper-and-pencil methods. However, one of **Call -A.P.P.L.E.**'s primary goals is to illustrate the ways in which you can use your Apple to enhance your everyday activities. While some people may be reluctant to try something new, we have repeatedly observed that once you get to first base there is no turning back.

## In This Issue

Our cover story this month, **THE Spreadsheet Sheet: A Sporting Application** by Jeffrey M. Jacques, shows why you don't have to unplug your computer for the summer. This somewhat unusual use of THE Spreadsheet, for keeping a neighborhood baseball team's records, demonstrates the wide versatility of this data manipulation tool.

The technical feature by our frequent contributor Cecil Fretwell, **ProDOS CHR$(4) Processing in Assembly Language**, expands on part of Apple's "ProDOS Technical Notes," and should be of significant interest to advanced ProDOS users.

We also present the third part of our **Practical Guide to AppleWorks**, reviews of a cost-efficient printer interface for the Apple II and a well-designed data base for the Mac, and lots of information on both old and new products. All in all, we hope you find this issue to be a HIT that helps your programs RUN with no ERRORs.

# Planting a Seed

**Peter C. Weiglin**

## The Home Non-Users?

A recent industry survey got a big play in the national news media: maybe you remember. It was the one that had the news people stating flatly that the Home Computer Market was dead or nonexistent.

The basis for this spectacular conclusion was that only 9 per cent or so of American homes contained computers, which was considerably less than the previous forecasts by microcomputer industry pundits for this time period. Those forecasts ranged from 15 to 80 per cent of the population, depending on the star count in the eyes of the forecaster.

Well, nine per cent is somewhere around six million computers, which is not exactly insignificant if you view it away from the incredible hype that has surrounded the industry for the past few years. That nine per cent only looks bad when you compare it to expectations.

And therein lies the problem that is at

the heart of the difficulty faced by customers, users, dealers, manufacturers, and even publishers: exaggerated expectations based upon the early expotential rise of a new market. Many computer-related operations fell prey to plausible forecasts that depended on implausible but widely-accepted assumptions. The most widely accepted of these was, "The person computer is so good for everybody that everybody will want one soon."

In the euphoric state that accompanied the field's early growth, much money was invested based on these forecasts. Now, a good portion of the industry is drowning in a sea of unpaid bills, lost venture capital, broken Mercedes leases, orphan products, plummeting stock values, and lawsuits.

Two maxims were ignored: (1) No market is infinite. (2) Nothing good happens as soon as you think it will. There is another old saying that comes to mind: (3) "The Bigger they are . . ."

In the case of Apple Computer, the time had clearly come for re-orientation to some realistic forecasts, and Apple's management is doing that. The Company's PR people are valiantly denying that the corporate culture will change after this latest reorganization; economic necessity dictates otherwise. In fact, Apple has been making the transition from cuddly small iconoclastic trend-setter to large organizational hard-nosed durable-goods manufacturer. The most needed improvement at Apple, it seems, was in the area of realistic forecasting, rather than the terminal optimism that made fools of so many.

Apple has organized its "Home" marketing section into Home Desk and Home Business market segments, an attempt to address the diversity of the "Home" market. Note that a realistic forecast for home computers still shows an increase; it just will not be as meteoric as some venture capitalists and managers had been led to believe.

The other significant finding in that consumer study was that in ten per cent of the homes with home computers, the machines had not been touched for six months or more, because there was "nothing to do with them."

If that's supposed to be bad news, as reported, somebody's not looking. Look at it this way: 90 per cent of users *have* used their computers for something in the past six months. So the machines are not tucked away in large numbers like the CB radios, the movie cameras, or other dust-gathering appliances.

Should we expect more? Not necessarily. Intensity of use varies from occasional to "Omigosh; it's 3 AM already again." As a *Call -A.P.P.L.E.* reader, your use level is likely to be above average. You're also less likely to be worried about some bright-eyed market forecast, or the media reports, that find and promote proximate doom.

The Home Market will be good; as good as realism can make it.


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Circle 49 on Reader Service Card

# MEMBER BILLBOARD

## Summer Specials Mini-catalog

We would like to thank you for your excellent response to our special announcement of new products that was mailed to all members in June. From the Mach 3.5 Card to the Nashua disks and Electronic Arts programs, your encouraging feedback lets us know how we are meeting your summer computer needs. Another group of specials are being planned, so keep your eye on your mailbox.

## Member Survey

As many of you know, we recently completed a scientifically conducted survey of our membership to find out who you are, how you are using your computers, and what your future needs will be. Questionnaires were sent to more than 1,300 randomly-selected members, and over 85% were returned—many with extensive written comments. This is an extremely high return rate for a mail survey, and demonstrates your active involvement in the shaping of the Co-op.

The data are still being analyzed, but here are some of the highlights. Most members are well educated and economically secure—74% of the sample group have college degrees, and 44% have annual family incomes over $50,000. More than half of the respondents share their computers with other family members, and many use two or more computers in their daily activities. Almost 80% have done some programming—usually in BASIC, with a substantial number also using Assembly Language or Pascal.

The most common computer uses are business related, including word processing and data management. Software development, utility programs, and educational applications are also frequently mentioned. More than a third of the respondents plan to purchase a modem in the next year, and 24% have their eye on a hard disk drive. Plans for software purchases focus on utilities, followed by languages, games, and business programs.

We are impressed with the variety of interests and dedication to the use of Apples that is evident in these results, and A.P.P.L.E. Co-op is committed to serve your needs. To all who participated, *thank you*!

## Dividend Deferred

Based on the financial analysis of fiscal year 1984, it was decided not to issue a co-op dividend at this time. Although income exceeded expenses in the last quarter (after we obtained official co-op status), there was not a profit for the year as a whole. A detailed financial statement will be issued to all members in the near future.

## Reader's Choice Winners

Congratulations to Jeffrey L. Schedin of Minneapolis, MN and Harold S. March of Elmhurst, IL for winning $100 toward A.P.P.L.E. products at our recent Reader's Choice card drawings. Please pay close attention to the feedback card in this issue, and let us know which articles or columns are your favorites.


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In either case, whether you are a developer, Sunday programmer or an applications user, expect to see the Apple II doing some impressive things with large memory cards during the next year.

PRODUCT: A.P.P.L.E. BIG BOARD
SHIPPING WEIGHT: 2 lbs. 0 oz.
Compatible with II, II+, IIe

| Product Code | Special Price | Regular Price | List Price |
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| HB512K | $299 | $329 | $399 |
| HB768K | $349 | $399 | $499 |
| HB1MEG | $399 | $450 | $599 |

Special prices effective through September 30, 1985. Availability September 1.

## Multiram //e

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Comes with 320K RAM onboard, drivers in DOS 3.3 and ProDOS to turn the MultiRam //e into a super fast RAM-disk. A CP/M driver is available at additional cost from Checkmate.

### Standard features include:

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- Easy to expand at any time.
- Full 5 year warranty on card and components.
- Software included to:
  -configure AppleWorks to use all MultiRam //e memory.
  -use MultiRam //e as ProDOS or DOS 3.3 RAM disk emulator.
  Test MultiRam //e memory for defective RAM.

### Optional features include:

- 64K or 256K RAM kits to expand MultiRam //e.
- The MultiRam RGB card adds 768K expansion capacity - produces RGB video signal.
- CP/M RAM disk emulator.
- 16 bit 65816 processor card to give the Apple IIe super-micro capabilities (available soon).

PRODUCT: MultiRam //e
PRODUCT CODE: HM320K
PRICE: $249.00
SHIPPING WEIGHT: 2 lbs. 0 oz.

## Fastfind Bonus Update 85-1

The disk contains the Call-A.P.P.L.E. FastFind index for the first six months of 1985. As a special bonus, this disk also includes the Author and Title index for the magazine from 1978 through 1984. For those who have not already used FastFind, you will be amazed at how many solutions to your computer problems have been offered in the pages of Call-A.P.P.L.E. over the last few years. Call-A.P.P.L.E. FastFind gives you a practical way of locating that information when you need it. (The Bonus Update requires that you have the original Call-A.P.P.L.E. FastFind disk. Order Prod. Code SFAST, Price $15, Shipping Wt. 8 oz.)

PRODUCT: FASTFIND BONUS UPDATE 85-1
PRODUCT CODE: SFAST1
PRICE: $7.50
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PRODUCT: Applesoft Program Editor Pro
PRODUCT CODE: SAPEP (II, II+, IIe, IIc)
PRICE: $37.50
SHIPPING WEIGHT: 1 lb. 0 oz.

## Copy II Plus 5.1

**by Central Point Software**

PRODUCT: COPY ][ PLUS 5.1
PRODUCT CODE: S2CPY
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## Copy II Mac

**by Central Point Software**

PRODUCT: COPY II MAC
PRODUCT CODE: SMCCPY
PRICE: $25.00
SHIPPING WEIGHT: 0 lb. 14 oz.

## A.P.E. Pro Update

The update includes the ProDOS version of Applesoft Program Editor and the addendum to the manual.

PRODUCT: A.P.E. Pro Update
PRODUCT CODE: SAPEPU (II, II+, IIe, IIc)
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Circle 43 on Reader Service Card

# THE Spreadsheet Sheet: A Sporting Application

Jeffrey M. Jacques

## Introduction

At every workshop I do on using electronic spreadsheets there is at least one participant who wants to know if THE Spreadsheet can be used to keep softball statistics. At Apple user group meetings, there is always a little league parent who has the responsibility for keeping the team statistics. Some other people just like to follow baseball and keep their own statistics. These being the dog days of summer, with baseball approaching its zenith, I thought that I would develop a softball/baseball template.

If you are not interested in baseball or softball, that's all right. You might wish to read the rest of the article since we shall cover some additional functions which we have not encountered before. We shall meet some old friends, too. But they will be used in a new way. These functions include:

| | | |
|---|---|---|
| @TRUE | @ERROR | @IF |
| @FALSE | @NA | @ROUND |

Since this template uses a variety of information from various parts of the worksheet, all of which cannot be displayed on the screen at any one time, we shall have an opportunity to explore at least one use of the /WINDOW command. But, before we go on to these topics, a brief discussion of the essential baseball statistics is in order.

## Essential Baseball Statistics

Most people who keep track of baseball or softball statistics need to know information about individual and team performances. While most of the data (e.g., number of at bats, hits, runs, type of hit [single, double, etc.], number of times on base due to error, etc.) may be transcribed easily from any typical scorecard, summary statistics for individual players must be computed. The summary softball player statistics that one team found useful are included in Figure 1.

Most of these are straightforward and require minimal explanation. The AVE is what you would expect— it is simply the number of hits (HITS) divided by the number of at bats (AB).

The on base proportion (OBP) adds (1) the number of walks (Base on Balls—BB) and (2) the number of times a batter reached first due to a fielder's error (OBE) to the total number of hits (HITS) before dividing this value by the number of times at bat (AB).

What may not be so obvious is that the statistics, Total Bases and Slugging proportion, are computed by first weighing the total number of hits by the type of hit (e.g., 2 * Number of doubles, 3 * Number of triples, etc.). Only then are these statistics computed.

Computing any proportion always involves division. THE Spreadsheet will always report ERROR where division by zero is encountered. Since ERROR displayed in any cell is unsightly, we can use the @IF function to check the value of the divisor and then choose what we wish to report. The general format of an @IF function is:

**@IF(condition, value1, value2)**

For example, we can check the number of at bats for the first player (i.e., Brill) before we compute his average with the expression:

**@IF(D5 = 0,@NA,E5/D5)**

If he did not have any at bats (D5 = 0), then a NA (not available) will be reported. Alternately, the batting average is computed.

Baseball and softball statistics are generally reported in thousandths. So, we shall use the function

**@ROUND(expression,3)**

as part of most of THE Spreadsheet equations. For our first player, the complete expression becomes

**@IF(D5 = 0,@NA,@ROUND(E5/D5,3))**

Other individual statistics will be computed similarly.

Summary team statistics will be computed in a straightforward manner. Team totals (e.g., number of hits, runs, etc.) are simply summed at the bottom of the table using the function

**@SUM(beginning cell . . . ending cell)**

Actually, by using one row before the beginning cell and one row after the ending

**Figure 1. Summary Softball Statistics**

| | |
|---|---|
| Total Number of Bases (TB) | = Number of singles (1B) + (2 * Number of doubles (2B)) 7 + (3 * Number of triples (3B)) + (4 * Number of home runs (HB)) + Number of Walks (BB) + Number of times on base due to errors (OBE) |
| Batting Average (AVE) | = Number of hits (HITS) / Number of at bats (AB) |
| On Base Proportion | = (Number of hits (HITS) + Number of times on base due to errors (OBE) + Number of walks (BB) ) / (Number of walks (BB) + Number of at bats (AB) ) |
| Slugging Proportion | = ( Number of singles (1B) + (2 * Number of doubles (2B) + (3 * Number of triples (3B)) + (4 * Number of home runs (HB)) / (number of at bats (AB) |

**Note: Abbreviations used in template are reported in parentheses.**

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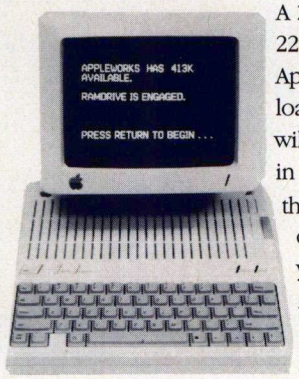


A 256K Z-RAM will give you a 229K available desktop and Appleworks will be completely loaded into memory. Appleworks will now run about 10 times faster in your IIc with 1 disk drive than in other IIc's with 2 disk drives. A 512K Z-RAM will give you a 413K available desktop. A 256K Z-RAM can be upgraded to 512K by just plugging in more memory chips.

Z-RAM is also a high speed solid state disk drive. With Z-RAM, your programs will load and save over 20 times faster. Z-RAM's RAM disk is compatible with Applesoft, Pro-DOS, DOS 3.3, PASCAL and CP/M. And with Z-RAM, you can copy a disk in one pass. Just insert the original, remove the original, insert blank disk! That's it! Z-RAM is another disk drive, only 20 times faster, 4 times larger capacity, and no whirring, clicking or waiting!

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With the Z-RAM card installed, your IIc is still your IIc only now you'll have that extra memory that Appleworks and other programs need. And you can run all that great CP/M software that others can only dream about.

Z-RAM is 100% compatible with all IIc software and hardware including the mouse, 2nd disk, modem and printer. Z-RAM is easily handled by the IIc power supply as power consumption is kept very low by using two custom integrated circuits and a patent pending power saving design. And Z-RAM is from Applied Engineering, the acknowledged leader and innovator of accessories for the Apple.

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| | |
|---|---|
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TABLE 1. SOFTBALL DATA GAMES 6 AND 7

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Jacques | | | | | | | SOFTBALL (Through Game : | | 6) | | | | | | | | | |
| 2 | May 15, 1985 | | | | | | | | | | | | | | | | | | |
| 3 | | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE + | | TB | AVG | OBP | SLUG | |
| 4 | Old Game Data = | | | | | | | | | | | | | | | | | | |
| 5 | C5...M21 | BRILL JARRIN | 5 | 18 | 5 | 7 | 5 | 4 | 0 | 1 | 0 | 1 | 3 | * | 11 | .278 | .474 | .389 | |
| 6 | | COOPERMAN,A | 6 | 21 | 12 | 8 | 4 | 10 | 2 | 0 | 0 | 1 | 2 | * | 17 | .571 | .682 | .667 | |
| 7 | Recent Game Data = | EBERSTEIN,IKE | 5 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | |
| 8 | C34...M50 | FRIEDLANDER STEVE | 5 | 6 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | * | 4 | .333 | .5 | .333 | |
| 9 | | GOLDWICH,MIKE | 6 | 20 | 13 | 9 | 8 | 9 | 1 | 2 | 1 | 3 | 1 | * | 25 | .65 | .739 | 1.05 | |
| 10 | Summary Stats: | GOREN,PETER | 5 | 6 | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | * | 2 | .333 | .333 | .333 | |
| 11 | Total Table= | GORIN BOB | 2 | 7 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | * | 5 | .286 | .625 | .286 | |
| 12 | B58...R82 | HARRIS DAVID | 2 | 8 | 4 | 4 | 2 | 3 | 1 | 0 | 0 | 0 | 1 | * | 6 | .5 | .625 | .625 | |
| 13 | New Data= | HARRIS JERRY | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | |
| 14 | C62...M78 | HARRIS, MIKE | 6 | 18 | 8 | 6 | 2 | 7 | 1 | 0 | 0 | 0 | 0 | * | 9 | .444 | .444 | .5 | |
| 15 | | LICHTMAN HOWIE | 1 | 4 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | * | 3 | .75 | .75 | .75 | |
| 16 | | LUCKOWER HANK | 6 | 18 | 8 | 7 | 6 | 8 | 0 | 0 | 0 | 1 | 1 | * | 10 | .444 | .526 | .444 | |
| 17 | | MEDOFF NORM | 5 | 16 | 7 | 8 | 9 | 4 | 2 | 0 | 1 | 1 | 1 | * | 14 | .438 | .529 | .75 | |
| 18 | | MYERS CHRIS | 6 | 21 | 10 | 7 | 10 | 5 | 2 | 0 | 3 | 1 | 1 | * | 23 | .476 | .545 | 1 | |
| 19 | | PFEFFER GLEN | 6 | 21 | 12 | 11 | 6 | 9 | 0 | 0 | 3 | 3 | 1 | * | 25 | .571 | .667 | 1 | |
| 20 | | STAUBER ALVIN | 4 | 14 | 7 | 5 | 6 | 5 | 2 | 0 | 0 | 0 | 1 | * | 10 | .5 | .571 | .643 | |
| 21 | | TESSEL STEVE | 5 | 10 | 2 | 2 | 1 | 2 | 0 | 0 | 0 | 2 | 1 | * | 5 | .2 | .417 | .2 | |
| 22 | | | | | | | | | | | | | | | | | | | |
| 23 | | TEAM | 6 | 219 | 97 | 80 | 66 | 75 | 11 | 3 | 8 | 16 | 15 | * | 169 | .443 | .545 | .63 | |
| 24 | | | | | | | | | | | | | | | | | | | |
| 25 | | DEFINITION: TB=BASES ON HITS +OBE+BB OBP=HITS +OBE +BB/ AB+BB Error= FALSE | | | | | | | | | | | | | | | | | |
| 26 | | SLUG= TOTAL BASES ON HITS/ AB EG. TRIPLE = 3 BASES | | | | | | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | | | | | | | | |

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | | | | | | | | | | | | | | | | | | | |
| 30 | | | | | | | | CURRENT GAME | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | |
| 32 | | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE + | | TB | AVG | OBP | SLUG | |
| 33 | | | | | | | | | | | | | | | | | | | |
| 34 | | BRILL JARRIN | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | NA | NA | NA | TRUE |
| 35 | | COOPERMAN,A | 1 | 4 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | * | 3 | .5 | .5 | .75 | TRUE |
| 36 | | EBERSTEIN,IKE | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | TRUE |
| 37 | | FRIEDLANDER STEVE | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | TRUE |
| 38 | | GOLDWICH,MIKE | 1 | 4 | 3 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | * | 4 | .75 | .75 | 1 | TRUE |
| 39 | | GOREN,PETER | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | TRUE |
| 40 | | GORIN BOB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | NA | NA | NA | TRUE |
| 41 | | HARRIS DAVID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | NA | NA | NA | TRUE |
| 42 | | HARRIS JERRY | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 | TRUE |
| 43 | | HARRIS, MIKE | 1 | 3 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | * | 1 | .333 | .333 | .333 | TRUE |
| 44 | | LICHTMAN HOWIE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | NA | NA | NA | TRUE |
| 45 | | LUCKOWER HANK | 1 | 4 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | * | 2 | .5 | .5 | .5 | TRUE |
| 46 | | MEDOFF NORM | 1 | 3 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | * | 3 | .333 | .667 | .667 | TRUE |
| 47 | | MYERS CHRIS | 1 | 4 | 2 | 1 | 3 | 1 | 0 | 0 | 1 | 0 | 0 | * | 5 | .5 | .5 | 1.25 | TRUE |
| 48 | | PFEFFER GLEN | 1 | 4 | 3 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | * | 3 | .75 | .75 | .75 | TRUE |
| 49 | | STAUBER ALVIN | 1 | 4 | 1 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | * | 3 | .25 | .5 | .5 | TRUE |
| 50 | | TESSEL STEVE | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | * | 1 | 0 | .5 | 0 | TRUE |
| 51 | | | | | | | | | | | | | | | | | | | |
| 52 | | TEAM | 1 | 36 | 15 | 9 | 8 | 10 | 4 | 0 | 1 | 0 | 3 | * | 25 | .417 | .5 | .611 | TRUE |
| 53 | | | | | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | Error= | FALSE | | | |
| 55 | | | | | | | | | | | | | | | | | | | |

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56 | | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | SUMMARY OF ALL GAMES (Through Game: | 7) | | | | | | | | |
| 59 | | | | | | | | | | | | | | | | | | |
| 60 | | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE + | | TB | AVG | OBP | SLUG |
| 61 | | | | | | | | | | | | | | | | | | |
| 62 | | BRILL JARRIN | 5 | 18 | 5 | 7 | 5 | 4 | 0 | 1 | 0 | 1 | 3 | * | 11 | .278 | .474 | .389 |
| 63 | | COOPERMAN,A | 7 | 25 | 14 | 9 | 4 | 11 | 3 | 0 | 0 | 1 | 2 | * | 20 | .56 | .654 | .68 |
| 64 | | EBERSTEIN,IKE | 6 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 |
| 65 | | FRIEDLANDER STEVE | 6 | 7 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | * | 4 | .286 | .444 | .286 |
| 66 | | GOLDWICH,MIKE | 7 | 24 | 16 | 10 | 9 | 11 | 2 | 2 | 1 | 3 | 1 | * | 29 | .667 | .741 | 1.042 |
| 67 | | GOREN,PETER | 6 | 7 | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | * | 2 | .286 | .286 | .286 |
| 68 | | GORIN BOB | 2 | 7 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 2 | * | 5 | .286 | .625 | .286 |
| 69 | | HARRIS DAVID | 2 | 8 | 4 | 4 | 2 | 3 | 1 | 0 | 0 | 0 | 1 | * | 6 | .5 | .625 | .625 |
| 70 | | HARRIS JERRY | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * | 0 | 0 | 0 | 0 |
| 71 | | HARRIS, MIKE | 7 | 21 | 9 | 7 | 2 | 8 | 1 | 0 | 0 | 0 | 0 | * | 10 | .429 | .429 | .476 |
| 72 | | LICHTMAN HOWIE | 1 | 4 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | * | 3 | .75 | .75 | .75 |
| 73 | | LUCKOWER HANK | 7 | 22 | 10 | 7 | 6 | 10 | 0 | 0 | 0 | 1 | 1 | * | 12 | .455 | .522 | .455 |
| 74 | | MEDOFF NORM | 6 | 19 | 8 | 10 | 11 | 4 | 3 | 0 | 1 | 1 | 2 | * | 17 | .421 | .55 | .737 |
| 75 | | MYERS CHRIS | 7 | 25 | 12 | 8 | 13 | 6 | 2 | 0 | 4 | 1 | 1 | * | 28 | .48 | .538 | 1.04 |
| 76 | | PFEFFER GLEN | 7 | 25 | 15 | 12 | 6 | 12 | 0 | 0 | 3 | 3 | 1 | * | 28 | .6 | .679 | .96 |
| 77 | | STAUBER ALVIN | 5 | 18 | 8 | 6 | 8 | 5 | 3 | 0 | 0 | 0 | 2 | * | 13 | .444 | .556 | .611 |
| 78 | | TESSEL STEVE | 6 | 12 | 2 | 3 | 1 | 2 | 0 | 0 | 0 | 2 | 2 | * | 6 | .167 | .429 | .167 |
| 79 | | | | | | | | | | | | | | | | | | |
| 80 | | TEAM | 7 | 255 | 112 | 89 | 74 | 85 | 15 | 3 | 9 | 16 | 18 | * | 194 | .439 | .539 | .627 |
| 81 | | | | | | | | | | | | | | | | | | |
| 82 | | | | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | | | | |

cell coordinates, we will more easily be able to insert new players—the SUM function will adjust automatically. You will, therefore, find it to your advantage to use **@SUM(D4...D22)** rather than **@SUM-(D5...D21).**

Computed summary team statistics (e.g., Total bases, On base proportion, etc.) were computed as if they were being computed for any other player. Of course, here too we shall use the @IF and @ROUND functions.

### Setting Up the Template

Now that I know THE Spreadsheet formulae and what I must report for each player and team summary, it's easy to structure the way I wish the table to look. (A brief look at Table 1, rows 1 through 27 may help.)

The top part of the template simply lists each players' name and the transcribed statistics. See columns B through M. The four extreme right columns, columns O

TABLE 2. TEMPLATE FORMULAE

| | A | B | N | O | P | Q | R |
|---|---|---|---|---|---|---|---|
| 1 | Jacques | | | | | | |
| 2 | May 15, 1985 | | | | | | |
| 3 | | Team Member | * | TB | AVG | OBP | SLUG |
| 4 | Old Game Data= | | | | | | |
| 5 | C5...M21 | BRILL JARRIN | * | +H5+(2*I5)+(3*J5)+(4*K5)+L5+M5 | @IF(D5=0,@NA,@ROUND(E5/D5),3) | @IF(L5+D5=0,@NA,@ROUND((+E5+L5+M5)/(L5+D5),3)) | @IF(D5=0,@NA,@ROUND(H5+(2*I5)+(3*J5)+(4*K5)/D5,3)) |
| 6 | | COOPERMAN,A | * | +H6+(2*I6)+(3*J6)+(4*K6)+L6+M6 | @IF(D6=0,@NA,@ROUND(E6/D6),3) | @IF(L6+D6=0,@NA,@ROUND((+E6+L6+M6)/(L6+D6),3)) | @IF(D6=0,@NA,@ROUND(H6+(2*I6)+(3*J6)+(4*K6)/D6,3)) |
| 7 | Recent Game Data= | EBERSTEIN,IKE | * | +H7+(2*I7)+(3*J7)+(4*K7)+L7+M7 | @IF(D7=0,@NA,@ROUND(E7/D7),3) | @IF(L7+D7=0,@NA,@ROUND((+E7+L7+M7)/(L7+D7),3)) | @IF(D7=0,@NA,@ROUND(H7+(2*I7)+(3*J7)+(4*K7)/D7,3)) |
| | | . | | . | . | . | . |
| | | . | | . | . | . | . |
| | | . | | . | . | . | . |
| 19 | | PFEFFER GLEN | * | +H19+(2*I19)+(3*J19)+(4*K19)+L19+M19 | @IF(D19=0,@NA,@ROUND(E19/D19),3) | @IF(L19+D19=0,@NA,@ROUND((+E19+L19+M19)/(L19+D19),3)) | @IF(D19=0,@NA,@ROUND(H19+(2*I19)+(3*J19)+(4*K19)/D19,3)) |
| 20 | | STAUBER ALVIN | * | +H20+(2*I20)+(3*J20)+(4*K20)+L20+M20 | @IF(D20=0,@NA,@ROUND(E20/D20),3) | @IF(L20+D20=0,@NA,@ROUND((+E20+L20+M20)/(L20+D20),3)) | @IF(D20=0,@NA,@ROUND(H20+(2*I20)+(3*J20)+(4*K20)/D20,3)) |
| 21 | | TESSEL STEVE | * | +H21+(2*I21)+(3*J21)+(4*K21)+L21+M21 | @IF(D21=0,@NA,@ROUND(E21/D21),3) | @IF(L21+D21=0,@NA,@ROUND((+E21+L21+M21)/(L21+D21),3)) | @IF(D21=0,@NA,@ROUND(H21+2*I21)+(3*J21)+(4*K21)/D21,3)) |
| 22 | | | | | | | |
| 23 | | TEAM | * | +H23+(2*I23)+(3*J23)+(4*K23)+L23+M23 | @IF(D23=0,@NA,@ROUND(E23/D23),3) | @IF(L23+D23=0,@NA,@ROUND((+E23+L23+M23)/(L23+D23),3)) | @IF(D23=0,@NA,@ROUND(H22+(2*I23)+(3*J23)+(4*K23)/D23,3)) |
| 24 | | | | | | | |
| 25 | | | | @IF(@SUM(H23...K23)=E23,@FALSE,@TRUE) | | | |

| | B | N | O | P | Q | R | S |
|---|---|---|---|---|---|---|---|
| 29 | | | | | | | |
| 30 | | | | | | | |
| 31 | | | | | | | |
| 32 | Team Member | * | TB | AVG | OBP | SLUG | |
| 33 | | | | | | | |
| 34 | BRILL JARRIN | * | +H34+(2*I34)+(3*J34)+(4*K34)+L34+M34 | @IF(D34=0,@NA,@ROUND(E34/D34,3)) | @IF(L34+D34=0,@NA,@ROUND((+E34+L34+M34)/(L34+D34),3)) | @IF(D34=0,@NA,@ROUND((H34+(2*I34)+(3*J34)+(4*K34)/D34,3)) | @IF(E34=@SUM(H34.K34),@TRUE,@ERROR) |
| 35 | COOPERMAN,A | * | +H35+(2*I35)+(3*J35)+(4*K35)+L35+M35 | @IF(D35=0,@NA,@ROUND(E35/D35,3)) | @IF(L35+D35=0,@NA,@ROUND((+E35+L35+M35)/(L35+D35),3)) | @IF(D35=0,@NA,@ROUND((H35+(2*I35)+(3*J35)+(4*K35)/D35,3)) | @IF(E35=@SUM(H35.K35),@TRUE,@ERROR) |
| 36 | EBERSTEIN,IKE | * | +H36+(2*I36)+(3*J36)+(4*K36)+L36+M36 | @IF(D36=0,@NA,@ROUND(E36/D36,3)) | @IF(L36+D36=0,@NA,@ROUND((+E36+L36+M36)/(L36+D36),3)) | @IF(D36=0,@NA,@ROUND((H36+(2*I35)+(3*J36)+(4*K36)/D36,3)) | @IF(E36=@SUM(H36.K36),@TRUE,@ERROR) |
| | . | | . | . | . | . | . |
| | . | | . | . | . | . | . |
| | . | | . | . | . | . | . |
| 48 | PFEFFER GLEN | * | +H48+(2*I48)+(3*J48)+(4*K48)+L48+M48 | @IF(D48=0,@NA,@ROUND(E48/D48,3)) | @IF(L48+D48=0,@NA,@ROUND((+E48+L48+M48)/(L48+D48),3)) | @IF(D48=0,@NA,@ROUND((H48+(2*I48)+(3*J48)+(4*K48)/D48,3)) | @IF(E48=@SUM(H48.K48),@TRUE,@ERROR) |
| 49 | STAUBER ALVIN | * | +H49+(2*I49)+(3*J49)+(4*K49)+L49+M49 | @IF(D49=0,@NA,@ROUND(E49/D49,3)) | @IF(L49+D49=0,@NA,@ROUND((+E49+L49+M49)/(L49+D49),3)) | @IF(D49=0,@NA,@ROUND((H49+(2*I49)+(3*J49)+(4*K49)/D49,3)) | @IF(E49=@SUM(H49.K49),@TRUE,@ERROR) |
| 50 | TESSEL STEVE | * | +H50+(2*I50)+(3*J50)+(4*K50)+L50+M50 | @IF(D50=0,@NA,@ROUND(E50/D50,3)) | @IF(L50+D50=0,@NA,@ROUND((+E50+L50+M50)/(L50+D50),3)) | @IF(D50=0,@NA,@ROUND((H50+(2*I50)+(3*J50)+(4*K50)/D50,3)) | @IF(E50=@SUM(H50.K50),@TRUE,@ERROR) |
| 51 | | | | | | | |
| 52 | TEAM | * | +H52+(2*I52)+(3*J52)+(4*K52)+L52+M52 | @IF(D52=0,@NA,@ROUND(E52/D52,3)) | @IF(L52+D52=0,@NA,@ROUND((+E52+L52+M52)/(L52+D52),3)) | @IF(D52=0,@NA,@ROUND((H52+(2*I52)+(3*J52)+(4*K52)/D52,3)) | @IF(E52=@SUM(H52.K52),@TRUE,@ERROR) |
| 53 | | | | | | | |
| 54 | | | @IF(@SUM(H52...K52=E52),@FALSE,@TRUE) | | | | |
| 55 | | | | | | | |

| | B | C | M | N | O | P | Q | R |
|---|---|---|---|---|---|---|---|---|
| 56 | | | | | | | | |
| 57 | | | | | | | | |
| 58 | | | | | | | | |
| 59 | | | | | | | | |
| 60 | Team Member | # GAMES | ... | OBE | TB | AVG | OBP | SLUG |
| 61 | | | | | | | | |
| 62 | BRILL JARRIN | +C5+C34 | ... | +M5+M34 | * +H62+(2*I62)+(3*J62)+(4*K62)+L62+M62 | @IF(D62=0,@NA,@ROUND(E62/D62,3)) | @IF(L62+D62=0,@NA,@ROUND((+E62+L62+M62)/(L62+D62),3)) | @IF(D62=0,@NA,@ROUND((H62+(2*I62)+(3*J62)+(4*K62)/D62,3)) |
| 63 | COOPERMAN,A | +C6+C35 | ... | +M6+M35 | * +H63+(2*I63)+(3*J63)+(4*K63)+L63+M63 | @IF(D63=0,@NA,@ROUND(E63/D63,3)) | @IF(L63+D63=0,@NA,@ROUND((+E63+L63+M63)/(L63+D63),3)) | @IF(D63=0,@NA,@ROUND((H63+(2*I63)+(3*J63)+(4*K63)/D63,3)) |
| 64 | EBERSTEIN,IKE | +C7+C36 | ... | +M6+M36 | * +H64+(2*I64)+(3*J64)+(4*K64)+L64+M64 | @IF(D64=0,@NA,@ROUND(E64/D64,3)) | @IF(L64+D64=0,@NA,@ROUND((+E64+L64+M64)/(L64+D64),3)) | @IF(D64=0,@NA,@ROUND((H64+(2*I64)+(3*J64)+(4*K64)/D64,3)) |
| 76 | PFEFFER GLEN | +C19+C48 | ... | +M19+M48 | * +H76+(2*I76)+(3*J76)+(4*K76)+L76+M76 | @IF(D76=0,@NA,@ROUND(E76/D76,3)) | @IF(L76+D76=0,@NA,@ROUND((+E76+L76+M76)/(L76+D76),3)) | @IF(D76=0,@NA,@ROUND((H76+(2*I76)+(3*J76)+(4*K76)/D76,3)) |
| 77 | STAUBER ALVIN | +C20+C49 | ... | +M20+M49 | * +H77+(2*I77)+(3*J77)+(4*K77)+L77+M77 | @IF(D77=0,@NA,@ROUND(E77/D77,3)) | @IF(L77+D77=0,@NA,@ROUND((+E77+L77+M77)/(L77+D77),3)) | @IF(D77=0,@NA,@ROUND((H77+(2*I77)+(3*J77)+(4*K77)/D77,3)) |
| 78 | TESSEL STEVE | +C21+C50 | ... | +M21+M50 | * +H78+(2*I78)+(3*J78)+(4*K78)+L78+M78 | @IF(D780,@NA,@ROUND(E78/D78,3)) | @IF(L78+D78=0,@NA,@ROUND((+E78+L78+M78)/(L78+D78),3)) | @IF(D78=0,@NA,@ROUND((H78+(2*I78)+(3*J78)+(4*K78)/D78,3)) |
| 79 | | | | | | | | |
| 80 | TEAM | +C23+C52 | ... | +M23+M52 | * +H80+(2*I80)+(3*J80)+(4*K80)+L80+M80 | @IF(D80=0,@NA,@ROUND(E80/D80,3)) | @IF(L80+D80=0,@NA,@ROUND((+E80+L80+M80)/(L80+D80),3)) | @IF(D80=0,@NA,@ROUND((H80+(2*I80)+(3*J80)+(4*K80))/D80,3)) |
| 81 | | | | | | | | |
| 82 | | | | | | | | |
| 83 | | | | | | | | |

Note: Columns do not align so that you may more easily see the equations.

through R, are all computed values and use the formulae we discussed above. You can see the appropriate formulae in Table 2.

What's more difficult is to figure out how to keep a running total. (You may wish to give this some thought before reading my approach.)

Okay, here's my solution. Since most players will perform in many games, I will set up two additional tables. The first additional table will be used to enter and report the current or most recent game statistics. A simple listing of each player's name and a format consistent with the original table will suffice. (See rows 30 through 54, columns B though M, of Table 1.)

Of course, some people are interested in current game statistics. Simply /Reproduce the equations in columns O through R to the second table, remembering to answer relative to each computer query. This will shorten your work load considerably.

Any good data entry table will have a routine for checking the reliability of the entries. Column S is used for this purpose. It contains the expression

**@IF(E34 = @SUM(H34...K34),@TRUE, @ERROR)**

As you may surmise from Table 1 and Table 2, this expression checks to make sure that the total number of hits entered in column E is equal to the sum of all the singles (column H), doubles (column I), triples (column J) and home runs (column K). As long as they are equal, then TRUE is displayed in column S. If they are not equal (e.g., you forgot to enter a single for someone), then ERROR will appear. This will help you identify data entry problems.

Summary basic team statistics for the current game, row 52, are generally computed with the @SUM function. Of course, a value of 1 is always stored in cell C52.

The last section of the template will automatically sum the original values (rows 5 through 21) earned by each player with his or her most recent game statistics (rows 34 through 50). Much of the body of this segment of the worksheet (cells C62 through M78) are composed of simple expressions (e.g., C62 = +C5+C34; C63 = +C6+C35; etc.). More complex summary statistics (e.g., slugging proportion, etc.) is computed in the usual manner. See Table 2.

## Some Other Useful Checks and Computations

The first time you enter data you will probably use the top part of the template. To make sure that the total number of hits corresponds to the sum of all singles, doubles, triples, and home runs, cell O25 checks your entries with the expression

**@IF(@SUM(H23...K23) = E23,@FALSE, @TRUE)**

If the data are equal, then ERROR = FALSE will be displayed in cells O24 and O25, respectively. If they don't add up, then you will have ERROR = TRUE in these same cells.

The total number of games played to date (cell C23) may be hand entered. Or, if you have at least one player who will play in every game, then you can use the @MAX-(C4...C22) function. This cell value is then referenced to cells I1 (for table header) and C80 (for new total number of completed games).

## Working With Windows

Clearly, the current game entry table (rows 30 through 53) of the template is too wide for you to be able to display all the entries and the summary statistics for any player. Under normal circumstances, therefore, you would not be able to see if the entry error checking routine (column S) is displaying TRUE or ERROR. What to do?

You've probably guessed it. By using the /Window command, you can display the template's widely divergent segments simultaneously. Here's how to do it with our baseball template.

1. Move the marker to cell S32 and make sure that cell S32 is in the upper right hand corner of the screen.
2. Enter /W —window command causes the prompt line to display: H V 1 S U
3. Enter V —for vertical

The screen will now split vertically at this


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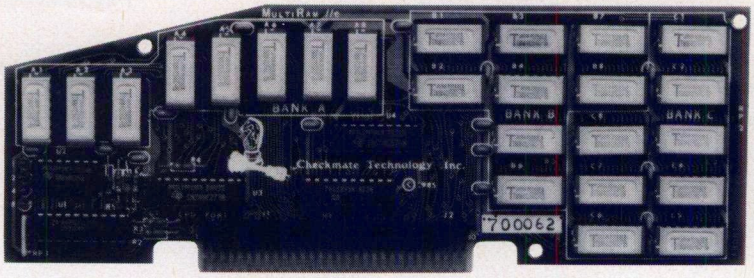


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Use HIDOS command in hello program for turnkey startup, adding 10K free memory to run 30% larger Applesoft programs than Pro-DOS. Moves DAVID-DOS II and 4 buffers above main memory.

### Ultra-Fast Garbage

New FRE command collects a memory full of 6000 strings that are half garbage in two seconds. DOS 3.3 takes 12 minutes. FRE is so fast it is not noticeable during run of most programs.

### Clock Dating

Automatic date stamping of disk files is set up for 6 kinds of clocks or Hello manual date entry. New DATE command will auto-insert date in correspondence.

| All times in seconds. (Time Test programs available) | | DAVID DOS-II | ProDOS | DOS 3.3 |
|---|---|---|---|---|
| TEXTFILES (100 Sectors) | TSAVE | 8.0 | NO | NO |
| | TLOAD | 6.2 | NO | NO |
| (791 Strings, | WRITE | 29.3 | 28.0 | 88.4 |
| 32 chars ea) | READ | 24.3 | 16.3 | 83.8 |
| | PRINT/READ | 44.2 | 45.9 | 117.1 |
| (442 Sectors, 7 x 500) | APPEND | 142.3 | 142.9 | 1231.2 |
| APPLESOFT (100 Sectors) | *SAVE | 6.4 | 16.4 | 33.1 |
| | LOAD | 5.0 | 4.0 | 23.5 |
| INTEGER (100 Sectors) | *SAVE | 6.6 | NO | 33.4 |
| | LOAD | 4.9 | NO | 23.4 |
| BINARY (100 Sectors) | *BSAVE | 7.3 | 18.4 | 28.7 |
| | BLOAD | 5.8 | 4.8 | 24.5 |
| 48K PROGRAM SPACE | APPLESOFT | 36,352 | NO | 36,352 |
| (With 3 Bufs avail) | INTEGER | 36,352 | NO | 36,352 |
| | BINARY | 36,352 | 34,816 | 36,352 |
| 64K PROGRAM SPACE | APPLESOFT | 46,592 | 32,256 | 35,756 |
| (With 4 Bufs avail) | INTEGER | 46,592 | NO | 35,756 |
| | BINARY | 46,592 | 41,728 | 35,756 |

*Add 5 seconds for Verify. Apple II, Applesoft & ProDOS are trademarks of Apple

### Ten New DOS Commands

1. HIDOS moves DOS above 48K memory.
2. FRE makes ultra-fast garbage collection.
3. DATE stamp files. Clock or manual dating.
4. TLOAD speed loads all Text Files to mem.
5. TSAVE speed saves Text Files from memory.
6. TLIST lists all Text Files to screen/printer.
7. DUMP Binary/Ascii to screen or printer.
8. DISA disassembles Binary to screen/printer.
9. AL prints program Address & Length.
10. / is a one keystroke Catalog.

### Identical Operation

All new commands operate identical to old DOS commands on the keyboard & in programs.

### Install in Three Seconds

Install DAVID-DOS II on your full disks in three seconds without touching the programs. Create bootable high-speed new disks with a Basic, Binary, or Exec Hello & 35/40 tracks. Create Data-Disks with 30 extra sectors.

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location. You will see two sets of row numbers.

4. Move the marker back to cell B32.

Note that the left hand part of the screen (Window 1) scrolled but the right part of the screen (Window 2) did not move. Now, you can enter the data for each player. After you enter his/her scorecard data, press the ! key. (We assumed here that you set the recalculation mode to manual.) If TRUE still appears, then your entries for the number of hits matches the total number of singles, doubles, triples and home runs. If ERROR appears, then you made at least one entry error for this player. You now know whose data are incorrect and you can fix them easily.

If the number of players exceeds the maximum number of rows, then set the /Window command to Synchronize Windows. This will force the two windows to scroll up together—both windows will scroll up one line when you move the marker down past the bottom of the screen.

If you have another application where you need to get from one window to another, then enter a semicolon (;). This will move you between the two windows. A second press of the ; will get you back to the first window.

Ending the /Window command is easy. Simply press /Window 1. The extra column of row numbers will disappear.

## Using the Template

By now you may be wondering how to use this template for each new game. It's easy. First, save the original template. This may help you recover from any disasters.

Second, enter the first game data directly into the first part of the template. (If you are using manual recalculations options, then press the ! command. It will force the calculations.) All you need print are cells B1 through R26.

Then, save the entire worksheet.

Third, when the second game is completed, load your worksheet which included game 1 statistics, transcribe the player data from your scorecard to the current game table, rows 34 to 50. A press of the ! command will compute all the player and team statistics for the current game as well as a summary total, rows 58 through 81. You can now print all of the worksheet segments, or just the final summary table.

Fourth, as a precaution, save your worksheet before taking the next step.

Fifth, to get ready for the next game statistics, /Blank out all the values in cells C34 through M50. If you are using THE Spreadsheet, this may be accomplished most easily by

a) /Blank cell C34
b) /Reproduce C34:C35...C50
c) /Reproduce C34...C50:D34...M34

Sixth (this is the most difficult part), you are ready to /Reproduce just the values from the summary table, rows 62 through 78, to the top table, rows 5 through 21. To accomplish this

a) Place the marker in cell C62
b) /Reproduce C62
c) Enter ( —your prompt line should say LIMIT:A F C V N R )
d) Enter V —thus indicating you wish to transfer values not formulae
e) Enter ) —completes option selection
f) Enter . . . M78:C5—your entry line should read C62. . . M78:C5
g) Enter RETURN —completes the process

This will automatically transfer only the data values. If you do not enter the Value option, then the formulae will be transfered and you will be asked for Relative/No Change. Transfering the formula into the top part of the template will distroy it. So, don't forget the Value option in the /Reproduce command.

By the way, if you have trouble remembering beginning and ending cells for the data as well as table information, then you can use column A, rows 4 through 14, as a reference. When you finish these two steps, then your worksheet should look like Table 3.

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TABLE 3. UPDATED DATA AND READY FOR NEW ENTRIES

SOFTBALL (Through Game : 6)

| Row | A | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE * | TB | AVG | OBP | SLUG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Jacques | | | | | | | | | | | | | | | | |
| 2 | May 15, 1985 | | | | | | | | | | | | | | | | |
| 4 | Old Game Data= | | | | | | | | | | | | | | | | |
| 5 | C5...M21 | BRILL JARRIN | 5 | 18 | 5 | 7 | 5 | 4 | 0 | 1 | 0 | 1 | 3 * | 11 | .278 | .474 | .389 |
| 6 | | COOPERMAN,A | 7 | 25 | 14 | 9 | 4 | 11 | 3 | 0 | 0 | 1 | 2 * | 20 | .56 | .654 | .68 |
| 7 | Recent Game Data= | EBERSTEIN,IKE | 6 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 * | 0 | 0 | 0 | 0 |
| 8 | C34...M50 | FRIEDLANDER STEVE | 6 | 7 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 * | 4 | .286 | .444 | .286 |
| 9 | | GOLDWICH,MIKE | 7 | 24 | 16 | 10 | 9 | 11 | 2 | 2 | 1 | 3 | 1 * | 29 | .667 | .741 | 1.042 |
| 10 | Summary Stats: | GOREN,PETER | 6 | 7 | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 * | 2 | .286 | .286 | .286 |
| 11 | Total Table= | GORIN BOB | 2 | 7 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 2 * | 5 | .286 | .625 | .286 |
| 12 | B58...R82 | HARRIS DAVID | 2 | 8 | 4 | 4 | 2 | 3 | 1 | 0 | 0 | 0 | 1 * | 6 | .5 | .625 | .625 |
| 13 | New Data= | HARRIS JERRY | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 * | 0 | 0 | 0 | 0 |
| 14 | C62...M78 | HARRIS, MIKE | 7 | 21 | 9 | 7 | 2 | 8 | 1 | 0 | 0 | 0 | 0 * | 10 | .429 | .429 | .476 |
| 15 | | LICHTMAN HOWIE | 1 | 4 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 * | 3 | .75 | .75 | .75 |
| 16 | | LUCKOWER HANK | 7 | 22 | 10 | 7 | 6 | 10 | 0 | 0 | 0 | 1 | 1 * | 12 | .455 | .522 | .455 |
| 17 | | MEDOFF NORM | 6 | 19 | 8 | 10 | 11 | 4 | 3 | 0 | 1 | 1 | 2 * | 17 | .421 | .55 | .737 |
| 18 | | MYERS CHRIS | 7 | 25 | 12 | 8 | 13 | 6 | 2 | 0 | 4 | 1 | 1 * | 28 | .48 | .538 | 1.04 |
| 19 | | PFEFFER GLEN | 7 | 25 | 15 | 12 | 6 | 12 | 0 | 0 | 3 | 3 | 1 * | 28 | .6 | .679 | .96 |
| 20 | | STAUBER ALVIN | 5 | 18 | 8 | 6 | 8 | 5 | 3 | 0 | 0 | 0 | 2 * | 13 | .444 | .556 | .611 |
| 21 | | TESSEL STEVE | 6 | 12 | 2 | 3 | 1 | 2 | 0 | 0 | 0 | 2 | 2 * | 6 | .167 | .429 | .167 |
| 22 | | | | | | | | | | | | | * | | | | |
| 23 | | TEAM | 6 | 255 | 112 | 89 | 74 | 85 | 15 | 3 | 9 | 16 | 18 * | 194 | .439 | .539 | .627 |

25 DEFINITION: TB=BASES ON HITS +OBE+BB OBP=HITS +OBE +BB/ AB+BB Error= FALSE
26 SLUG= TOTAL BASES ON HITS/ AB EG. TRIPLE = 3 BASES

CURRENT GAME

| Row | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE * | TB | AVG | OBP | SLUG | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | BRILL JARRIN | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 35 | COOPERMAN,A | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 36 | EBERSTEIN,IKE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 37 | FRIEDLANDER STEVE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 38 | GOLDWICH,MIKE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 39 | GOREN,PETER | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 40 | GORIN BOB | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 41 | HARRIS DAVID | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 42 | HARRIS JERRY | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 43 | HARRIS, MIKE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 44 | LICHTMAN HOWIE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 45 | LUCKOWER HANK | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 46 | MEDOFF NORM | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 47 | MYERS CHRIS | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 48 | PFEFFER GLEN | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 49 | STAUBER ALVIN | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 50 | TESSEL STEVE | | | | | | | | | | | * | 0 | NA | NA | NA | TRUE |
| 51 | | | | | | | | | | | | * | | | | | |
| 52 | TEAM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 * | 0 | NA | NA | NA | TRUE |

54 Error= FALSE

SUMMARY OF ALL GAMES (Through Game: 7)

| Row | Team Member | # GAMES | AB | HITS | RUNS | RBI | 1B | 2B | 3B | HR | BB | OBE * | TB | AVG | OBP | SLUG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 | BRILL JARRIN | 5 | 18 | 5 | 7 | 5 | 4 | 0 | 1 | 0 | 1 | 3 * | 11 | .278 | .474 | .389 |
| 63 | COOPERMAN,A | 7 | 25 | 14 | 9 | 4 | 11 | 3 | 0 | 0 | 1 | 2 * | 20 | .56 | .654 | .68 |
| 64 | EBERSTEIN,IKE | 6 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 * | 0 | 0 | 0 | 0 |
| 65 | FRIEDLANDER STEVE | 6 | 7 | 2 | 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 * | 4 | .286 | .444 | .286 |
| 66 | GOLDWICH,MIKE | 7 | 24 | 16 | 10 | 9 | 11 | 2 | 2 | 1 | 3 | 1 * | 29 | .667 | .741 | 1.042 |
| 67 | GOREN,PETER | 6 | 7 | 2 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 * | 2 | .286 | .286 | .286 |
| 68 | GORIN BOB | 2 | 7 | 2 | 3 | 0 | 2 | 0 | 0 | 0 | 1 | 2 * | 5 | .286 | .625 | .286 |
| 69 | HARRIS DAVID | 2 | 8 | 4 | 4 | 2 | 3 | 1 | 0 | 0 | 0 | 1 * | 6 | .5 | .625 | .625 |
| 70 | HARRIS JERRY | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 * | 0 | 0 | 0 | 0 |
| 71 | HARRIS, MIKE | 7 | 21 | 9 | 7 | 2 | 8 | 1 | 0 | 0 | 0 | 0 * | 10 | .429 | .429 | .476 |
| 72 | LICHTMAN HOWIE | 1 | 4 | 3 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 * | 3 | .75 | .75 | .75 |
| 73 | LUCKOWER HANK | 7 | 22 | 10 | 7 | 6 | 10 | 0 | 0 | 0 | 1 | 1 * | 12 | .455 | .522 | .455 |
| 74 | MEDOFF NORM | 6 | 19 | 8 | 10 | 11 | 4 | 3 | 0 | 1 | 1 | 2 * | 17 | .421 | .55 | .737 |
| 75 | MYERS CHRIS | 7 | 25 | 12 | 8 | 13 | 6 | 2 | 0 | 4 | 1 | 1 * | 28 | .48 | .538 | 1.04 |
| 76 | PFEFFER GLEN | 7 | 25 | 15 | 12 | 6 | 12 | 0 | 0 | 3 | 3 | 1 * | 28 | .6 | .679 | .96 |
| 77 | STAUBER ALVIN | 5 | 18 | 8 | 6 | 8 | 5 | 3 | 0 | 0 | 0 | 2 * | 13 | .444 | .556 | .611 |
| 78 | TESSEL STEVE | 6 | 12 | 2 | 3 | 1 | 2 | 0 | 0 | 0 | 2 | 2 * | 6 | .167 | .429 | .167 |
| 79 | | | | | | | | | | | | * | | | | |
| 80 | TEAM | 7 | 255 | 112 | 89 | 74 | 85 | 15 | 3 | 9 | 16 | 18 * | 194 | .439 | .539 | .627 |

Seventh, save the worksheet until the next game is played.

If you wish, you can save it under a different name so that you have a worksheet for each game played. Alternately, you can save it over your earlier worksheet, thus saving disk space.

You can then repeat the process, starting over with step number 3, for as many games played by your favorite team.

## Enhancements

Obviously, the number of players on your team may be different. Furthermore, the scorecard you use at the game may be different than mine. Also, you may wish to protect the cells which are used to store the equations. In any case, modify your template and worksheets to fit your needs.

While this template may not help your team win the pennant, it will reduce your workload considerably.

# ProDOS CHR$(4) Processing in Assembly Language

Cecil Fretwell

FOR those of us who are licensed developers for ProDOS, Apple has always accompanied each new release of ProDOS with a set of technical notes. Unfortunately, these notes are not included in the documentation purchased by non-licensed customers. This is evidenced by the numerous phone calls I have received on the subject of this article.

## ProDOS and BASIC.SYSTEM

In this article, I will concentrate on "ProDOS TECHNICAL NOTE #2" with a revision date of 7 Aug 84. The note has two purposes. First, it aids DOS 3.3 users in transporting assembly language programs to ProDOS. Second, it augments the ProDOS TECHNICAL REFERENCE MANUAL section entitled "A.3.1 Making Calls to the BASIC System Program." The technical note refers to this as "Passing Disk Commands Under BASIC.SYSTEM to ProDOS from Machine Code".

The article has two major sections. First, I will present the essential information contained in the Apple Technical Note. This note points out problems in passing the commands to BASIC.SYSTEM; therefore, in the second section, I will offer some solutions to the problems.

Under DOS 3.3, commands can be executed by a direct call to the proper address in DOS or by sending a string through the monitor subroutine COUT ($FDED). This string must start with CTRL-D ($84) followed by the command string characters with Bit 7 turned on and terminated by RETURN ($8D).

The first method of calling the proper address in DOS can, in theory, be performed under the BASIC.SYSTEM environment. This takes a lot of knowledge of the BASIC.SYSTEM code; a project which many of us have found to be quite lengthy. Given the proper qualifications, one can also obtain the BASIC.SYSTEM source from Apple.

If you choose to make an undocumented call into the BASIC.SYSTEM code, you leave yourself open to a can of worms. To quote Apple, "Apple Computer will not support any entries into BASIC.SYSTEM or the ProDOS kernel that are not published by Apple. If you use any undocumented entries, your application may not operate under future releases of PRODOS and BASIC.SYSTEM".

In my experience, this statement is almost completely "chiseled in stone". Since September 1983, before ProDOS was released to the public, I have found every version to contain code changes which change many undocumented calls I might consider.

The second DOS 3.3 method of passing commands as ASCII strings to COUT is not supported under ProDOS. In other words, it does not work without the schemes I will present in the second section of the article.

Before describing how to pass a command under ProDOS, there are some basic rules which must be followed. All operations must be performed in deferred mode (inside a program) and not in immediate mode. This also applies to the monitor program, i.e., you cannot do a $xxxxG to execute the code which passes a command under ProDOS. The reason for this is that BASIC.SYSTEM checks certain state flags and expects proper I/O hooks in $36 to $39. These flags and hooks are set correctly only while in deferred mode.

For a second rule, any machine code which uses the scheme to be described must be BLOADed and then activated via a CALL statement in the BASIC program. BRUNing the code from a BASIC program can create problems with respect to proper I/O hooks.

Under ProDOS, the ASCII command string must be placed in the input buffer at $200. The string must not start with CTRL-D ($04). Every character in the string need not have its high bit set and the string must be terminated by RETURN ($8D or $0D).

Having done this, execute a JSR DOSCMD ($BE03) to cause the string to be processed by BASIC.SYSTEM. BASIC.SYSTEM, in theory, will parse the command, set up all the parameters, and then execute the command as if it were issued from the keyboard or via the CHR$(4) scheme in BASIC. Notice I say "in theory" because, as I will show later, there are some problems associated with this process.

After a return from DOSCMD, if the carry flag is clear, the command was successfully executed. If an error occurred in the process, the carry flag will be set and the accumulator will contain an error code. The Technical Reference Manual claims the error code will also be stored in ERRCODE at $BE0F which is not true.

The error code in the accumulator can be processed one of three ways. First, you can choose to handle the error independently of any tools available in BASIC.SYSTEM. If the end result of your error processing is to return control back to BASIC.SYSTEM, make sure you clear the carry flag (CLC) before you return control. If you don't clear carry, BASIC.SYSTEM will assume some error has occurred and may do some awful and unpredictable things to you.

Second, you can immediately execute a JSR PRINTERR ($BE0C). This causes an error message to be displayed on the screen (or printer) and control is returned to your code. The error code is not stored in ERRCODE. As a side note, PRINTERR does not check on the validity of the error code in the accumulator. If you pass an error code unknown to the system, you may see some weird results displayed (or printed).

The third method is to execute JMP ERROUT ($BE09). The error code will be stored in ERRCODE by this process. ERROUT eventually passes control back to the ] prompt after displaying an error message via PRINTERR or back to a BASIC program if ONERR conditions are in effect. Before it does this, it closes all opened files and insures that the I/O hooks properly point to BASIC.SYSTEM.

## Safe and Risky Commands

Earlier I said this process works in theory. On the positive side, Apple claims most commands work correctly and return control to the calling routine. According to Apple, these are CAT, CATALOG, PREFIX, CREATE, RENAME, DELETE, LOCK, UNLOCK, VERIFY, SAVE, STORE, RESTORE, PR#, IN#, FRE, BYE, OPEN, CLOSE, FLUSH, POSITION, BRUN, BLOAD, and BSAVE.

In this list of commands, notice there is a BYE command. This command was added to the 1.1 release of ProDOS. It creates the same "quit" conditions as obtained when you exit from FILER, CONVERT, APPLEWORKS, etc.

Unfortunately, there are certain commands which will *not* work correctly or as expected when initiated via DOSCMD. They may or may not return control to the calling routine and may even lock up the system. According to Apple, these commands are - (DASH), RUN, LOAD, CHAIN, EXEC, READ, WRITE, and APPEND.

As stated in the Apple technical note, some of the commands listed as not working properly may work well enough to suit your individual purposes. Also some commands

```
PRODOS TECHNICAL NOTE 2

                        1    * LISTING 1 PREPARED VIA MERLIN PRO
                        2
                        3    ****************************************
                        4    * SHORT PROGRAM COPIED FROM APPLE PRODOS *
                        5    * TECHNICAL NOTE 2 REVISED 7 AUG 84.    *
                        6    *                                      *
                        7    * MUST BE EXECUTED FROM INSIDE A BASIC  *
                        8    * PROGRAM SUCH AS:                     *
                        9    *  10 PRINT CHR$(4);"BLOAD BI.COMMANDS" *
                       10    *  20 CALL 768                         *
                       11    *  30 PRINT "BACK TO REGULAR CONTROL"  *
                       12    *  40 END                              *
                       13    *                                      *
                       14    * AFTER RUNNING PROGRAM THE PROMPT:     *
                       15    *  ENTER BASIC.SYSTEM COMMAND:         *
                       16    * WILL APPEAR.  TO EXIT THE PROGRAM,    *
                       17    * ENTER ANY COMMAND SUCH AS 'STOP' TO   *
                       18    * CREATE SYNTAX ERROR MESSAGE.         *
                       19    ****************************************
                       20
                       21            ORG   $300
                       22
                       23    DOSCMD  =     $BE03       ;ISSUE BI COMMAND
                       24    PRINTERR =    $BE0C       ;DISPLAY ERROR
                       25    STROBE  =     $C010       ;KEYBOARD STROBE FLAG
                       26    GETLN1  =     $FD6F       ;MONITOR INPUT ROUTINE
                       27    COUT    =     $FDED       ;MONITOR OUTPUT ROUTINE
                       28
0300: A2 00            29    START   LDX   #0          ;DISPLAY PROMPT
0302: BD 1D 03         30    DISLOOP LDA   PROMPT,X
0305: F0 06            31            BEQ   CONTINUE    ;IF END OF PROMPT
0307: 20 ED FD         32            JSR   COUT
030A: E8               33            INX
030B: D0 F5            34            BNE   DISLOOP     ;ALWAYS BRANCH
                       35
030D: 20 6F FD         36    CONTINUE JSR  GETLN1      ;GET COMMAND FROM KB
0310: 20 03 BE         37            JSR   DOSCMD      ;AND EXECUTE COMMAND
0313: 2C 10 C0         38            BIT   STROBE      ;CLEAR ANY KB STROBE
0316: 90 E8            39            BCC   START       ;IF NO ERROR
                       40
                       41    ****************************************
                       42    * NOTE:  AFTER HANDLING YOUR ERROR, YOU MUST *
                       43    *        CLEAR CARRY BEFORE RETURNING TO     *
                       44    *        BASIC.SYSTEM.  FAILURE TO DO THIS   *
                       45    *        MAY CAUSE BASIC.SYSTEM TO DO SOME   *
                       46    *        STRANGE THINGS.                     *
                       47    ****************************************
                       48
0318: 20 0C BE         49            JSR   PRINTERR    ;DISPLAY ERROR
031B: 18               50            CLC               ;CLEAR CARRY
031C: 60               51            RTS               ;RETURN TO BASIC.SYSTEM
                       52
031D: 8D               53    PROMPT  HEX   8D          ;CARRIAGE RETURN
031E: C2 C1 D3         54            ASC   "BASIC.SYSTEM COMMAND: "
0321: C9 C3 AE D3 D9 D3 D4 C5 CD A0 C3 CF CD CD C1 CE C4 BA A0

PRODOS TECHNICAL NOTE 2                                        PAGE 18

0334: 00               55            HEX   00

--End assembly, 53 bytes, Errors: 0
```

will function (albeit precariously) in immediate mode. *If you decide to use the commands in this manner you are on your own.*

## DOSCMD Test Program

In order to investigate the commands passed to DOSCMD, I used the short assembly language program in Listing 1. It is a slight modification to the program given in the Apple technical note.

If you plan to use it, key it in via the monitor and then

```
BSAVE BI.COMMANDS,A$300,L53
```

Next, key in the following short BASIC program.

```
10  PRINT CHR$(4);"BLOAD
    BI.COMMANDS"
20  CALL 768
30  PRINT "BACK TO REGULAR
    CONTROL"
40  END
```

I SAVEd it as DO.BI.COMMANDS for future use then performed a RUN.

When the "ENTER BASIC.SYSTEM COMMAND:" prompt appears, enter commands as if you have the ] prompt in control. To exit the program, make a deliberate syntax error to have the program abort with a message followed by the "BACK TO REGULAR CONTROL" message.

Before I devote a few comments to this program, understand its limitations. It is a test program which does not completely replace the ] prompt operations. For example, on my //e I issued a LIST command. The BASIC program bombs and the system ends up in TRACE mode with BASIC.SYSTEM unhooked. This is one way to discover that BASIC.SYSTEM works in a "pseudo" TRACE mode which can foul up the system if a program bombs in a strange way.

In the program, Lines 29 to 34 display the prompt. Line 36 simulates or demonstates placing a command in the $200 buffer. Line 37 calls DOSCMD to process the command. Line 38 demonstrates any clean up work which does not alter the carry flag.

Lines 49 to 51 demonstrate how to use PRINTERR to process the error. Note carry is cleared before a return is made to BASIC.SYSTEM. If you choose to go the ERROUT route described earlier, Lines 49 to 51 can be replaced by a simple JMP ERROUT.

## Problems Uncovered

Using the program, I discovered some interesting things. The "-" command appears to behave itself if you use it to run a SYStem program such as FILER, CONVERT, or PRODOS. It makes sense that DOSCMD will not return to you because you are switching to an entirely different program environment.

If you try to execute a binary program or a BASIC program via the "-" command, the program appears to be loaded. The only problem is, the screen will be cleared and the keyboard is locked up. CTRL-RESET appears to regain safe control of the system. The same thing will happen if you try to RUN a BASIC program. In the second section of this article, I will offer some solutions to this problem.

LOAD appears to behave itself. It does not return control to the calling routine; it returns control to the ] prompt in immediate mode. Without modifying system code subject to change by Apple, I cannot offer a solution to this problem.

CHAIN has the same basic problems as described for RUN. My solutions to the RUN problem also seem to fix the CHAIN problems.

With regard to EXEC, there is absolutely no justification to use it inside an active program. In the numerous computer systems which use this concept, it is designed for use in immediate mode only. I played around with it using the schemes described in the second section and think it works from a running program with the end result of the system being in immediate mode.

READ, WRITE, and APPEND simply don't work using the scheme demonstrated by the program in Listing 1. Based on my tests, the disk fires up and can change some files. The end result is usually an abort to the ] prompt with a message such as FILE(S) BUSY. Any more work with the keyboard can result is such things as NO BUFFERS AVAILABLE or the inability to perform normal commands such as CAT, etc. A reboot is the only solution because BASIC.SYSTEM appears to be disconnected from APPLESOFT.

In developing the schemes given in the second section of this article, I discovered that the READ, WRITE, and APPEND commands are not really the problem. For example, when the file is OPENed for WRITE, there is the problem of sending data to the file via "PRINT" type of operations and then properly CLOSEing the file with the end result of having all data stored in the file.

Apple may not be able to fix the file problems using the current design of BASIC.SYSTEM. Even though I had taken apart the BASIC.SYSTEM code before I obtained the official source from Apple, I had to spend many hours arriving at the schemes I will describe in the second section.

Being able to OPEN, READ, WRITE, APPEND, FLUSH, POSITION, and CLOSE is obviously an important aspect of any disk based system. The fact that they do not work using DOSCMD has seriously impacted the development of compilers for Applesoft because machine code must be


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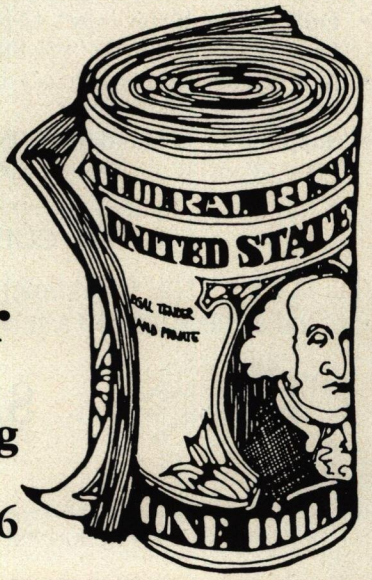


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generated to support these functions. Some user written programs and compiled BASIC must support the concept of simultaneously active files; therefore, I feel Apple should make a reasonable attempt to solve the problem.

If you are working with assembly language routines invoked from a BASIC program, the safest solution is to use the appropriate MLI functions such as OPEN, READ, WRITE, etc. I have not found these functions that hard to use even if simultaneously active files must be processed. The bottom line is, it's going to cost you memory because you can't take advantage of BASIC.SYSTEM code.

## Solutions

I have developed some schemes to solve the problems mentioned earlier with regard to RUN, WRITE, etc. I have tested the schemes to the best of my ability; however, I cannot fully guarantee they work under all circumstances. On the other hand, I feel they are reliable because I have tested them in the process of converting Blankenship's BBASIC to ProDOS. Only the test of time will prove me correct.

Without trying to come up with solutions unique to each command, the cleanest route to solving the problems is to provide the CHR$(4) scheme in an assembly language program CALLed from a BASIC program. As I stated earlier, do not BRUN the assembly language programs using my schemes because some I/O hook problems can result. Always use the equivalent of BLOADing the code then CALLing it at the desired points in your logic.

## CHR$(4) Logic

As some background for the schemes to follow, BASIC.SYSTEM has three states of operation. State 0 is active during immediate mode. State 4 is active during deferred mode, i.e., when a program is executing. State 8 is a special state within State 4 and is the key to initiating CHR$(4) operations. The active state number is always stored in STATE ($BE42) in the BASIC.SYSTEM global page and has a value of 0, 4, or 8.

In an executing BASIC program, BASIC.SYSTEM examines each token being interpreted by Applesoft. It does this by making Applesoft think it is always running in TRACE mode. When BASIC.SYSTEM sees the PRINT token, it assumes the PRINT statement may start with a CHR$(4) and sets up the output hook to trap future characters from the PRINT statement, i.e., it switches to the first stage of State 8 output. If the first character of the PRINT statement is not $84, it immediately switches back to State 4 and sends all characters in that PRINT statement to the proper output device.

If the first character is $84, BASIC.SYSTEM first flushes any output file which is active, clears the flags which show input, output, or prefix operations active, then switches to the second stage of State 8 output. This second stage collects characters in the keyboard buffer at $200 until a carriage return ($8D) is detected.

When the carriage return is detected, the I/O hooks in $36 to $39 are set to point to the active hardware device, e.g., screen or printer, and a call to DOSCMD is performed. If an error occurred in the command, the system processes that error through the logic pointed to by ERROUT at $BE09 in the global page.

If an error did not occur, the system assumes the possibility of the command changing the active hardware device and insures that the proper character output and character input routines are maintained in VECTOUT ($BE30, $BE31) and VECTIN ($BE32, $BE33). Finally, the system returns back to State 4.

This exact logic must be invoked from an assembly language program in order to solve the previously mentioned problems. Before I show how to invoke the logic, one important fact about its use must be understood. If you plan to mix file operations with commands such as CAT, CATALOG, etc., NEVER use DOSCMD for any commands unless you know what you are doing. This is especially true for writing to a disk file.

When writing to a disk file, after it is OPENed, BASIC.SYSTEM collects characters from a PRINT statement in the general purpose 1K buffer. After the 256th character is stored in this buffer, the 256 characters in that buffer are transferred to the 1K buffer allocated to the file. When a CLOSE is performed, remaining characters in the buffer, if any, are transferred to the 1K buffer allocated to the file. The CLOSE logic does not perform this transfer; it is performed by the logic triggered by the CHR$(4) at the beginning of the CLOSE command stream. Remember this fact because, for example, a CAT command issued through DOSCMD and not through my CHR$(4) logic may clobber valuable data in the general purpose 1K buffer.

## Demonstration Program

With this in mind, I will use Listing 2 to show how to invoke CHR$(4) logic from an assembly language program. First, let's concentrate on the logic in Lines 44 to 63. The code has been BLOADed and activated by a CALL statement in BASIC.

When the CALL is made, the State 4 output processing logic is not in a token analysis mode. In fact, the last token it has processed is the CALL token. Therefore, $84 is just another character and the first stage of State 8 is not invoked. I need the entry point into the first stage of the State 8 logic so I can send it a $84 to invoke the desired logic.

Because the entry point address is not stored anywhere in the global page, I tried numerous ideas of determining this address without using undocumented entry points


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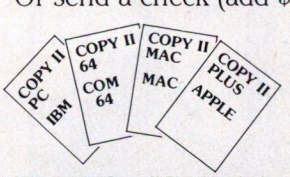


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in the BASIC.SYSTEM code. Not being successful in these efforts, in what is to follow, I am going to violate one of my own rules and gamble on the fact that in all releases of ProDOS and BASIC.SYSTEM there is some code which has never changed and should never change.

Buried inside BASIC.SYSTEM there is a table containing the addresses for each state's I/O processing. The address of this table has always changed from release to release therefore; I need a "safe" way of determining that address.

For this, I know there is a subroutine which is always used to set up the proper state and the proper I/O addresses using the desired table. It too moves from release to release and contains the desired table address. Gambling on some code never changing, location $9A19 contains a JSR to this subroutine. Lines 44 to 46 pick up the subroutine's address. The logic of this subroutine has never changed from release to release; therefore, the seventh and eighth bytes of this subroutine contain the address of the table I desire. Lines 48 to 52 use this fact to point to the location containing the address.

The logic in Lines 53 to 57 fetch the address of the table and place it in a safe temporary location in Page 0. That location is in Applesoft's temporary floating point accumulator. Finally, the logic in Lines 58 to 63 fetch the address of Stage 1 State 8 and store it in my code for future use.

CHR$(4) type of processing is now possible through COUT. In the sample program, Lines 65 to 72 display a prompt and allow me to enter a command into the $200 buffer.

To invoke the processing, Lines 78 to 81 set up Stage 1 of State 8 processing. Lines 82 and 83 pass the required initial $84 to that processing and full State 8 processing is invoked as described earlier. Lines 84 to 90 send the characters of the command, not including the terminating carriage return, through COUT. Finally, Line 91 sends the carriage return to terminate the command and causes the command to be executed.

Note that Line 91 is not followed by any error checking. If an error occurs, internal logic of BASIC.SYSTEM processes the error as if Applesoft statements were being executed. If you want to perform your own error processing, the internal entry point of the system error processing is located in the address of the JMP instruction stored at ERROUT ($BE09). The processing begins with the three byte instruction STA ERRCODE which can be conveniently replaced with a JMP to your logic.

Using the program in Listing 2, you can now prove to yourself that the various RUN commands with a file name and CHAIN with a file name work properly. You can even play around with EXEC processing if you so desire.

Using this sample program, entering RUN without a file name will not work and the program will bomb with a SYNTAX error. This makes some sense when one remembers that RUN without a file name is designed to be applicable only in immediate mode with a BASIC program already LOADed. I have had some inquiries as to how to make CTRL-RESET re-RUN a memory resident program, and I will demonstrate how to do this at the end of the article.

PRODOS TECHNICAL NOTE 2

```
                        1    * LISTING 2 PREPARED VIA MERLIN PRO
                        2
                        3    ****************************************
                        4    * SHORT PROGRAM COPIED FROM APPLE PRODOS *
                        5    * TECHNICAL NOTE 2 REVISED 7 AUG 84.    *
                        6    * SLIGHT MODIFICATION MADE TO MAKE      *
                        7    * COMMANDS EXECUTE PROPERLY.            *
                        8    *                                       *
                        9    * MUST BE EXECUTED FROM INSIDE A BASIC  *
                        10   * PROGRAM SUCH AS:                      *
                        11   * 10 PRINT CHR$(4);"BLOAD BI.COMMANDS"  *
                        12   * 20 CALL 768                           *
                        13   * 30 PRINT "BACK TO REGULAR CONTROL"    *
                        14   * 40 END                                *
                        15   *                                       *
                        16   * AFTER RUNNING PROGRAM THE PROMPT:     *
                        17   *  ENTER BASIC.SYSTEM COMMAND:          *
                        18   * WILL APPEAR.  TO EXIT THE PROGRAM,    *
                        19   * ENTER ANY COMMAND SUCH AS 'STOP' TO   *
                        20   * CREATE SYNTAX ERROR MESSAGE.          *
                        21   ****************************************
                        22
                        23            ORG   $300
                        24
                        25   TEMP     =     $A5         ;TEMP STORAGE
                        26   IN       =     $200        ;KB INPUT BUFFER
                        27   STATESYS =     $9A1A       ;STATESYS SUBROUTINE
                        28   PRINTERR =     $BE0C       ;DISPLAY ERROR
                        29   VSYSIO   =     $BE38       ;CI I/O REDIRECTION
                        30   STROBE   =     $C010       ;KEYBOARD STROBE FLAG
                        31   GETLN1   =     $FD6F       ;MONITOR INPUT ROUTINE
                        32   COUT     =     $FDED       ;MONITOR OUTPUT ROUTINE
                        33
                        34   ****************************************
                        35   * USING THE DOS 3.3 SCHEME OF SENDING A *
                        36   * CHR$(4) THEN A COMMAND THROUGH COUT   *
                        37   * IS POSSIBLE.  FOR THIS, THE VECTOR    *
                        38   * TO USE IN $36,$47 MUST BE FOUND.  THE *
                        39   * FOLLOWING CODE TO DO THIS APPEARS TO  *
                        40   * BE SAFE FROM FUTURE PRODOS CODE       *
                        41   * CHANGES.                              *
                        42   ****************************************
                        43
0300: AD 1B 9A          44            LDA   STATESYS+1 ;GET ADDRESS OF STATE
0303: A8                45            TAY            ;SUBROUTINE
0304: AD 1A 9A          46            LDA   STATESYS
0307: 18                47            CLC            ;GET ADDRESS OF POINTER
0308: 69 06             48            ADC   #6       ;TO STATE VECTOR TABLE
030A: 8D 16 03          49            STA   :1+1
030D: 98                50            TYA
030E: 69 00             51            ADC   #0
0310: 8D 17 03          52            STA   :1+2
0313: A2 01             53            LDX   #1       ;GET ADDRESS OF STATE
0315: BD FF 0F          54   :1       LDA   $FFF,X   ;ADDRESS TABLE AND
0318: 95 A5             55            STA   TEMP,X   ;PLANT IN A TEMPORARY
```

## READ, WRITE, and APPEND

The sample program in Listing 2 can not be used to fully test READ, WRITE, and APPEND operations because it does not allow writing data to or reading data from a file. Instead of including sample programs whose bulk repeats what I have already demonstrated, how to use these with my CHR$(4) scheme can be easily described in words.

First consider the necessary operations to OPEN a file, set it up for WRITE, send data to it, then CLOSE the file. Using the tools I have developed for CHR$(4) processing, issue a normal Applesoft type of OPEN and WRITE. Do not use DOSCMD for this purpose for reasons cited earlier.

To send data to the file, one minor operation must be performed before sending that data through COUT. BASIC.SYSTEM makes heavy use of the PROMPT character stored in $33 in Page 0 to control many operations. Therefore, just prior to the logic which sends characters through COUT, save the current contents of $33 then store a zero in that location. This is the PROMPT value associated with a normal PRINT statement in an Applesoft program. When you switch to other than COUT processing, restore the PROMPT to its original value.

When you want to CLOSE the file, use my CHR$(4) processing and not DOSCMD. This is necessary to have partial data transferred from the general purpose 1K buffer to the buffer allocated for the file.

As an aside, altering the PROMPT character can solve another problem. Suppose I have an assembly language program which performs some special formatting of data to be written to a file. A simple BASIC program to do this would be

```
PRODOS TECHNICAL NOTE 2

031A: CA          56              DEX
031B: 10 F8       57              BPL   :1
031D: A0 0D       58              LDY   #13         ;FINALLY GET STAGE 1
031F: B1 A5       59   :2         LDA   (TEMP),Y    ;ADDRESS FOR CHR$(4)
0321: 99 6E 03    60              STA   STAGE1-12,Y ;PROCESSING
0324: 88          61              DEY
0325: C0 0C       62              CPY   #12
0327: F0 F6       63              BEQ   :2
                  64
0329: A2 00       65   START      LDX   #0          ;DISPLAY PROMPT
032B: BD 62 03    66   DISLOOP    LDA   PROMPT,X
032E: F0 06       67              BEQ   CONTINUE    ;IF END OF PROMPT
0330: 20 ED FD    68              JSR   COUT
0333: E8          69              INX
0334: D0 F5       70              BNE   DISLOOP     ;ALWAYS BRANCH
                  71
0336: 20 6F FD    72   CONTINUE   JSR   GETLN1     ;GET COMMAND FROM KB
                  73
                  74   ************************
                  75   * FAKE A CHR$(4) SCHEME *
                  76   ************************
                  77
0339: AD 7A 03    78              LDA   STAGE1      ;MAKE CI THINK A
033C: 8D 38 BE    79              STA   VSYSIO      ;PRINT TOKEN HAS
033F: AD 7B 03    80              LDA   STAGE1+1    ;BEEN FOUND
0342: 8D 39 BE    81              STA   VSYSIO+1
0345: A9 84       82              LDA   #$84        ;YE OLD CHR$(4)
0347: 20 ED FD    83              JSR   COUT
034A: A2 00       84              LDX   #0          ;SEND COMMAND
034C: BD 00 02    85   :1         LDA   IN,X        ;THROUGH COUT
034F: C9 8D       86              CMP   #$8D
0351: F0 06       87              BEQ   :2          ;IF CR, BRANCH
0353: 20 ED FD    88              JSR   COUT
0356: E8          89              INX
0357: D0 F3       90              BNE   :1          ;ALWAYS BRANCH
0359: 20 ED FD    91   :2         JSR   COUT        ;AND EXECUTE COMMAND
035C: 2C 10 C0    92              BIT   STROBE      ;CLEAR ANY KB STROBE
035F: 4C 29 03    93              JMP   START       ;DO ANOTHER COMMAND
                  94
0362: 8D          95   PROMPT     HEX   8D          ;CARRIAGE RETURN
0363: C2 C1 D3    96              ASC   "BASIC.SYSTEM COMMAND: "
0366: C9 C3 AE D3 D9 D3 D4 C5 CD A0 C3 CF CD CD C1 CE C4 BA A0
0379: 00          97              HEX   00
                  98
                  99   ****************************************
                  100  * VECTOR FOR STAGE 1 OF CHR$(4) PROCESSING *
                  101  ****************************************
                  102
037A: 00 00       103  STAGE1     HEX   0000

--End assembly, 124 bytes, Errors: 0
```

```
PRINT CHR$(4);"OPEN MY.FILE"
PRINT CHR$(4);"WRITE MY.FILE"
CALL xxxx
PRINT CHR$(4);"CLOSE MY.FILE"
```

in which xxxx is the address of the assembly language program to send data to a file. This works because characters through COUT will go to a file if the PRINT token (PROMPT = 0), LIST token (PROMPT = 1), or CALL token (PROMPT = 2) is detected by BASIC.SYSTEM. If you replace the CALL with an ampersand function to invoke the assembly language program, the program will not work unless your logic includes the alteration of PROMPT as described above.

Now consider the operations necessary to OPEN a file, set it up for READ, read data from it, then CLOSE the file. Again, use the tools I have developed and issue a normal Applesoft type of OPEN and READ.

When you want to read from the file, save the PROMPT character and replace it with $80. A simple JSR RDKEY ($FD6A) then causes data to be read from the file and placed in the $200 keyboard buffer. After this, remember to restore the PROMPT character to its original value before you do such things as massage the data, display it through COUT, etc.

## RESET Key Trap

One final application of the CHR$(4) processing scheme for ProDOS and BASIC.SYSTEM. A number of programs are designed to not allow the CTRL-RESET key to return the system to immediate mode. In other words, CTRL-RESET must re-RUN the memory resident BASIC program. Listing 3 shows how this can be established.

Before describing this program in detail, a BASIC program to test it is needed. The following program serves this purpose.

```
10  TEXT:HOME
20  PRINT CHR$(4);"BRUN RESET"
30  ONERR GO TO 100
40  INPUT "COUNT: "
50  FOR I = 1 TO C
60  PRINT I;
70  NEXT
80  PRINT
90  GO TO 50
100 PRINT "RESET KEY TRAPPED"
110 GO TO 40
```

In this BASIC program, Line 20 installs the reset key logic given in Listing 3. In that listing, Lines 25 to 44 are the now familiar scheme to allow CHR$(4) processing. Lines 50 to 53 replace the current reset vector with the address of the user reset logic, Lines 63 to 82 in Listing 3. Lines 54 and 55 are necessary because without them, CTRL-RESET causes a system reboot. Finally, Line 56 returns control back to the BASIC program.

In the BASIC program, Line 30 establishes ONERR processing, a key statement for what is desired. Without the special reset processing described here, ONERR is also necessary to prevent CTRL-C in a program from returning control to immediate mode.

Now RUN the program and the "COUNT:" prompt will appear. Enter a number like 5 to make the program continuously display 12345 on a separate line on the screen. After a few lines of display, press the CTRL-RESET key and the result will be RESET KEY TRAPPED displayed and the COUNT: prompt reappears. Now let's see how this was accomplished.

When the CTRL-RESET key is pressed, control is passed to Line 63 in Listing 3. Lines 63 to 67 are necessary to restore proper system I/O redirection. By now, Lines 68 to 71 are familiar because they set up the CHR$(4) processing to follow.

Lines 74 to 81 send the CHR$(4) RUN string to the system. A return is never made to Line 82 because the RUN command just issued essentially creates a SYNTAX ERROR which is trapped by BASIC.SYSTEM and processed by the logic pointed to by ERROUT ($BE09). Since ONERR processing is active, Lines 100 and 110 in the BASIC program are now executed. After the message is displayed, the program is "re-RUN" by the GOTO in Line 110.

You might question the complexity of this scheme and ask why one can not simply use some of the RUN logic in Applesoft. There are several reasons for the logic given here.

First, one must insure good I/O hooks before re-running the program. Second, if the program has output files active when the CTRL-RESET key is used, it is probably desirable to flush those files then CLOSE all active files. The combination of using the CHR$(4) logic and the system's error processing accomplishes all of this.

In closing, I welcome your feedback as a result of this article. I have tested the code to the best of my ability and plan to use it when necessary in future applications. If you run into problems using the code, please do not hesitate to call or write me.

*Information and programs from the ProDOS Technical Notes are presented with permission of Apple Computer, Inc.*

```
PRODOS TECHNICAL NOTE 2

                        1    * LISTING 3 PREPARED VIA MERLIN PRO
                        2
                        3    ************************************
                        4    * SHORT PROGRAM TO DEMONSTRATE HOW TO *
                        5    * MAKE THE CTRL-RESET KEY RE-RUN A    *
                        6    * MEMORY RESIDENT BASIC PROGRAM.      *
                        7    ************************************
                        8
                        9            ORG   $300
                       10
                       11    CSWL     =     $36          ;I/O HOOKS
                       12    TEMP     =     $A5          ;TEMP STORAGE
                       13    RESET    =     $3F2         ;RESET VECTOR
                       14    PWRUP    =     $3F4         ;POWER UP BYTE
                       15    STATESYS =     $9A1A        ;STATESYS SUBROUTINE
                       16    VDOSIO   =     $BE34        ;CI I/O HOOKS
                       17    VSYSIO   =     $BE38        ;CI I/O REDIRECTION
                       18    COUT     =     $FDED        ;MONITOR OUTPUT ROUTINE
                       19
                       20    *********************************
                       21    * GET STAGE 1 ADDRESS FOR STATE 8 *
                       22    * PROCESSING.                     *
                       23    *********************************
                       24
0300: AD 1B 9A         25            LDA   STATESYS+1 ;GET ADDRESS OF STATE
0303: A8               26            TAY              ;SUBROUTINE
0304: AD 1A 9A         27            LDA   STATESYS
0307: 18               28            CLC              ;GET ADDRESS OF POINTER
0308: 69 06            29            ADC   #6         ;TO STATE VECTOR TABLE
030A: 8D 16 03         30            STA   :1+1
030D: 98               31            TYA
030E: 69 00            32            ADC   #0
0310: 8D 17 03         33            STA   :1+2
0313: A2 01            34            LDX   #1         ;GET ADDRESS OF STATE
0315: BD FF 0F         35    :1      LDA   $FFF,X     ;ADDRESS TABLE AND
0318: 95 A5            36            STA   TEMP,X     ;PLANT IN A TEMPORARY
031A: CA               37            DEX
031B: 10 F8            38            BPL   :1
031D: A0 0D            39            LDY   #13        ;FINALLY GET STAGE 1
031F: B1 A5            40    :2      LDA   (TEMP),Y   ;ADDRESS FOR CHR$(4)
0321: 99 5D 03         41            STA   STAGE1-12,Y ;PROCESSING
0324: 88               42            DEY
0325: C0 0C            43            CPY   #12
0327: F0 F6            44            BEQ   :2
                       45
                       46    *********************************
                       47    * NOW SET UP TO TRAP CTRL-RESET *
                       48    *********************************
                       49
0329: A9 39            50            LDA   #<TRAP     ;REPLACE SYSTEM TRAP
032B: 8D F2 03         51            STA   RESET
032E: A9 03            52            LDA   #>TRAP
0330: 8D F3 03         53            STA   RESET+1
0333: 49 A5            54            EOR   #$A5       ;REPLACE POWER UP BYTE
0335: 8D F4 03         55            STA   PWRUP

PRODOS TECHNICAL NOTE 2

0338: 60               56            RTS              ;RETURN TO BASIC
                       57
                       58    ****************************************
                       59    * WHEN CTRL-RESET IS PRESSED, CONTROL IS *
                       60    * IS PASSED TO HERE.                    *
                       61    ****************************************
                       62
0339: A2 03            63    TRAP    LDX   #3         ;SET UP I/O HOOKS
033B: BD 34 BE         64    :1      LDA   VDOSIO,X
033E: 95 36            65            STA   CSWL,X
0340: CA               66            DEX
0341: 10 F8            67            BPL   :1
0343: AD 69 03         68            LDA   STAGE1     ;MAKE CI THINK A
0346: 8D 38 BE         69            STA   VSYSIO     ;PRINT TOKEN HAS
0349: AD 6A 03         70            LDA   STAGE1+1   ;BEEN FOUND
034C: 8D 39 BE         71            STA   VSYSIO+1
034F: A9 84            72            LDA   #$84       ;ISSUE THE RUN
0351: 20 ED FD         73            JSR   COUT       ;COMMAND WITHOUT
0354: A9 D2            74            LDA   #"R        ;A FILE NAME
0356: 20 ED FD         75            JSR   COUT
0359: A9 D5            76            LDA   #"U
035B: 20 ED FD         77            JSR   COUT
035E: A9 CE            78            LDA   #"N
0360: 20 ED FD         79            JSR   COUT
0363: A9 8D            80            LDA   #$8D
0365: 20 ED FD         81            JSR   COUT       ;SHOULD NEVER RETURN
0368: 00               82            BRK              ;IN CASE IT DOES
                       83
                       84    ****************************************
                       85    * VECTOR FOR STAGE 1 OF CHR$(4) PROCESSING *
                       86    ****************************************
                       87
0369: 00 00            88    STAGE1  HEX   0000

--End assembly, 107 bytes, Errors: 0
```


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*Ad Number 222—Page 1* — *"All the News That Fits"* — *Summer 1985*


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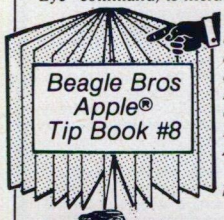


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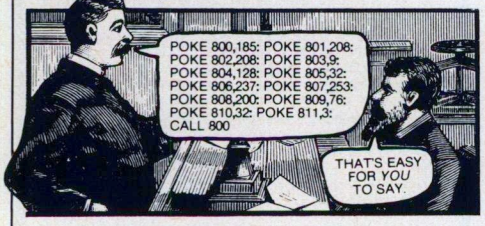
POKE 800,185: POKE 801,208:
POKE 802,208: POKE 803,9:
POKE 804,128: POKE 805,32:
POKE 806,237: POKE 807,253:
POKE 808,200: POKE 809,76:
POKE 810,32: POKE 811,3:
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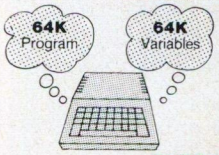


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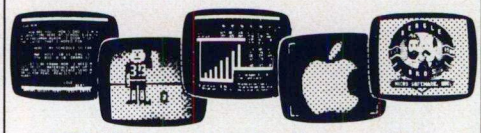

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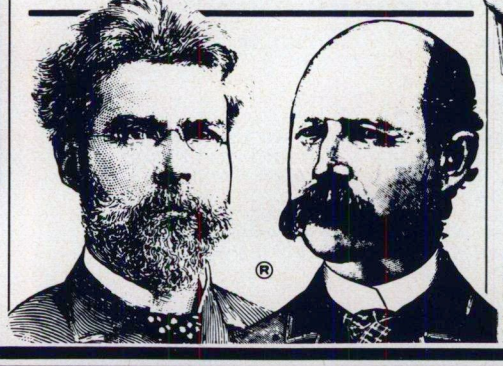

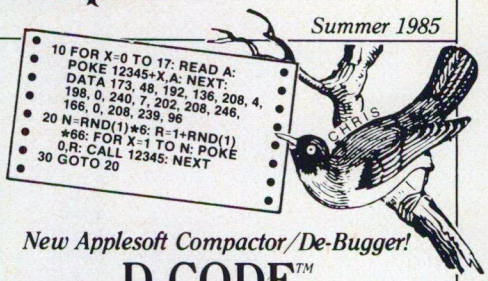


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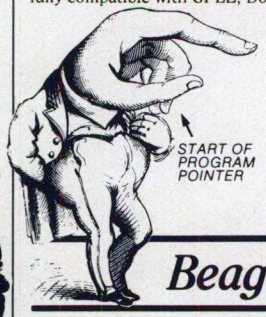


```
1  HOME: HTAB 5: POKE
   33,28: FOR C=1 TO 92:
   POKE 50,255-192*
   (C=4 OR C=64)
9  J=J+1-31*(J=31):
   PRINT CHR$(9+(J=1));
   SPC(2+(J<10))J;:
   NEXT: PRINT
85 POKE 33,1: PRINT
   "JULY..AUG..SEPT...."
```

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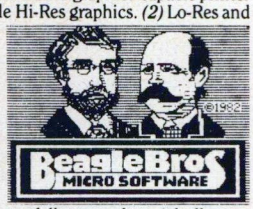


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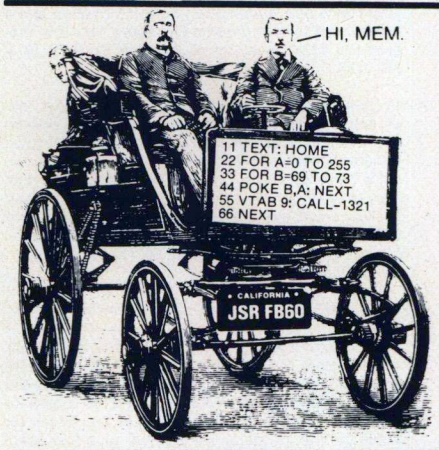


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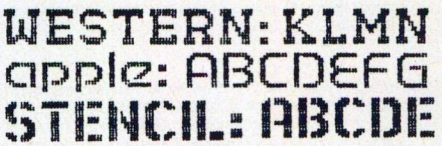


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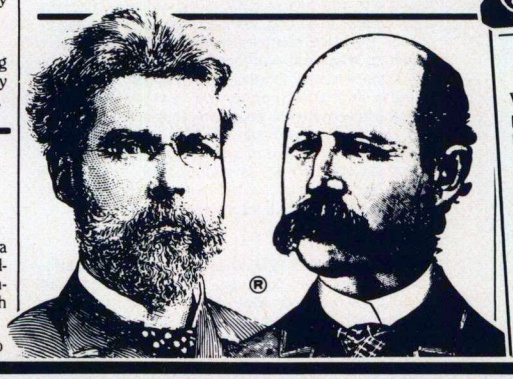

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# The Practical Guide to AppleWorks—

## Part 3: Some Data Base Wrinkles

Peter C. Weiglin & Joyce Conklin

THE purists will tell you that what Apple calls a "Data Base" in AppleWorks is actually a file list program and not a real data base at all. Well, that's so; AppleWorks' database will come nowhere near the capabilities of relational data bases like dBase II, or RBase 4000 on an IBM PC.

In fact, one of the authors' laments is that there is no real, full-function, high-capacity relational data base in the Apple II environment. It does not yet exist, because of memory and disk storage limitations. When Apple suppressed development on the Apple II to concentrate on Macintosh, the message received by software companies was clear: the II was not worth the effort; the IBM PC and the Mac were the ways to go. There is evidence that Apple's attitude is changing under the New Order, and that the memory and disk storage problems are due for spectacular solution, perhaps even as you read this.

The AppleWorks database is, however, as good a program as there is for maintenance of 80 per cent of the kind of lists you or your company might keep. That's true regardless of the brand of computer, blue or beige. Most or our lists are single-table, and are not going to exceed the 55K memory limit for a file in a 128K Apple //e or //c. The picture gets even brighter when you hook up one of Applied Engineering's RAM expansion boards. You can then create an AppleWorks database file that is too large to be saved to a 136K Apple floppy disk. Author Weiglin has a railroad locomotive file that's 148K long; it's intact on the hard disk, but the backup is split between two floppies.

Further, there's nothing that limits portability of files from one machine environment to another. We know of one company that routinely uses AppleWorks on five Apples for keyboard data entry, and then transfers the results to the "big" data base on an IBM.PC. Among the benefits of that arrangement are lower machine cost and use of a better keyboard than the one on the IBM.

AppleWorks' database is a simple row-and-column affair. The columns are called "Categories," and the rows are called "Records." (Note that the data base purist would call the category a "Field.") Each entry (the theoretical cell or box at the intersection of row and column, or record and category) may have up to 79 characters in it. AppleWorks allows up to 30 columns or categories and up to 3,000 rows or records.

The primary limitation on the size of a file is the computer's memory. The file must fit entirely within the RAM memory. (The monster data bases are not limited in this way; they're constantly accessing the storage disk.) Memory use varies depending on the number and length of entries, because the database file is a ProDOS sequential text datafile, specially formatted. It's not straight ASCII. Unfortunately, it is not an easily decipherable file structure.

Like the other parts of AppleWorks, screen layout and print options and formats are carried in the data files, not in the program file. You can't change the defaults once and for all, but must do so for every file you create. Example: AppleWorks defaults to a ten-pitch printer. If you want to use the 12-pitch printer option, you must set that option for each new file. If you make a copy of a file, the options you set will go along. This means that people can sometimes save themselves trouble by copying and modifying an existing file rather than starting from scratch.

## The Christmas List

Actually, you're more likely to run out of memory than you are to exceed the 3,000-line limit. But the capacity would seem to be enough for your Christmas card list, unless you're Jesse Helms, Ted Kennedy, or Xaviera Hollander. So the Christmas card list is the example we'll use to point out a few of the AppleWorks database features. Figure 1 is a screen printout of a 20-category database file, with the categories listed in the order they were defined. If that file had 400 records, it would use about 46K.

Note that last name and first name are two different categories. That allows sorting on last name. "Honorific," as Joe Budge called it, is the title. It could be "Ms.," 'Rev.," 'Dr. & Mrs.? (or "Dr. & Mr.'), etc. Home and work addresses and telephone numbers follow.

The **Comment** category allows classification of the people on your list, in this case by common interest. "XMAS," of course, means that they get a Christmas card from you. John Smith knows you because you have a common interest in Apples and scouting. Other names on your list might contain comments like 'Work," 'Church," 'College," etc.

The Comment category proves itself when you want to identify all of the scouting parents, the folks from work, or the bowling league, or the polo club. The Open Apple-R record selection process allows you to view or extract All Records Containing "XMAS," for example.

**XMAS—Rec'd.** answers the question, "Did we get a card from them last year?" (In this case yes, and in '83 too.) **Date updated** is the date of your most recent revision to this record.

The single-record screen layout could be better arranged, as for example in Figure 2. That was accomplished with the Open Apple-L screen layout process. Drag the categories around until they look right to you. Your custom format will remain until you add or delete a category, at which time they revert to the standard vanilla format exemplified by Figure 1.

Some folks are reluctant to use a custom screen layout because they dislike this reversion problem. Some folks also refuse to use a computer because they might have a problem with it. The custom formats aren't that hard to rebuild, and they do improve things visually. You can keep a record of your custom formats by printing a copy of the screen displays. The command is Open Apple-H, and you had better have the printer on and ready when you hit it; it dumps the screen to paper right now.

Figure 3 shows the label print format for our Christmas card list. We've selected those records whose Comment category contains XMAS. We could also have added a selection criterion like "And XMAS - Rec'd equals 84".

We'll print 6-line labels. The Honorific is followed by left-justified First Name and Last Name. Left-justify (Open Apple-J) is again used for City, State and Zip.

Now a small confession. We didn't actually put labels on our Christmas card envelopes. We printed the labels to a disk file configured as a printer. Note: that's *not* the same thing as to "A Text (ASCII) file on Disk." We're talking about a disk file created as one of your three printers. The difference is that "A Text (ASCII) file on Disk" will not print the label as you formatted it, with left-justified elements. Instead, you'll get each category, separated (delimited) by carriage returns.

You set up the disk as one of your printers. For your label format in the data file, select these options: Left Margin 4 inches. Right Margin 9 inches,Page width 10 inches. Page length equal to one label. (Six lines, one inch.) Top and Bottom Margins zero. Print Header? No. Keep lines the same within record? Yes. Pause each page,? Yes.

What you have done is set up to print directly on envelopes, one at a time, four inches from the left edge of the envelope. That's particularly effective with a daisy-wheel printer. Just crank 'em through and hit the space bar for each one.

If you or the Dainty One in your life insists on handwritten envelopes, copy from the screen. Or print to plain paper and let the Dainty One address 'em by hand.

Figure 1

```
File: Addresses                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records


Record 98 of 121
================================================================================
Last Name: Smith                          W-Country: USA
First Name: John                          Phone-W: 408-555-3322
Honorific: Mr. & Mrs.                     Comment: XMAS Apple Scouts
Spouse: Cheryl                            Xmas - Rec'd: 83 84
Home 1: 715 Granola Ave.                  Date updated: Mar  1 85
City: San Diablo
State: CA
Zip: 94266
Country: USA
Phone-H: 408-555-9871
Company: Swett & Strayne
Work 1: 115 Main St.
W-City: Silicon City
W-ST: CA
W-Zip: 94201
--------------------------------------------------------------------------------
Type entry or use  commands                                        -? for Help
```

Figure 2

```
File: Addresses                REVIEW/ADD/CHANGE              Escape: Main Menu

Selection: All records


Record 98 of 121
================================================================================
Last Name: Smith            First Name: John          Honorific: Mr. & Mrs.
                              Spouse: Cheryl


                                      Company: Swett & Strayne
Home 1: 715 Granola Ave.               Work 1: 115 Main St.
City: San Diablo                       W-City: Silicon City
State: CA   Zip: 94266                   W-ST: CA            W-Zip: 94201
Country: USA                           W-Country: USA

Phone-H: 408-555-9871                  Phone-W: 408-555-3322

                                       Comment: XMAS Apple Scouts
                                       Xmas - Rec'd: 83 84
                                       Date updated: Mar  1 85
--------------------------------------------------------------------------------
Type entry or use  commands                                        -? for Help
```

Figure 3

```
File: Addresses                REPORT FORMAT                  Escape: Report Menu
Report: label 1
Selection: Comment contains XMAS


================================================================================
Honorific   <First Name   <Last Name
Home 1
City            <State    <Zip


-----------------------Each record will print  6 lines-------------------------




--------------------------------------------------------------------------------
Use options shown on Help Screen                                   -? for Help
```

## Getting Data into Files

As is usual with these things, the time consuming part is the keyboard data entry. The thing that keeps spurring you on, however, is all the time you'll save once the initial grunt work is done. In this case, it hasn't been an illusion; the sort and search capability repaid the time investment during the first Christmas season.

If you already have your list on a disk file from another program, and can create a standard ASCII text file with carriage return delimiters, you can scoop all of the data into an AppleWorks database file from that ASCII text file. (By "carriage return delimiter," we mean that each element is separated by a carriage return. That's how AppleWorks knows to move on to the next category.)

It helps to have your ASCII file information in the category order that you want for your AppleWorks database file. If the ASCII file doesn't contain all of the categories you would like in the Ap-

pleWorks file, don't worry. You can insert the new categories using Open Apple-N after you create your new data base file.

What you *cannot* do after a file is created is rearrange the order of the categories in the file. The arrangement shown when you select Open Apple-N is fixed. Many people are misled by this because of the ease of altering the multiple-record screen layout. Then they try to merge information from two database files with identical screen layouts and wonder why they have telephone numbers in the name columns. For data to be moved from one file to another, the Open Apple-N category definitions must be identical.

Now that we've told you you can't rearrange categories, we'll tell you how to do it. It's true that AppleWorks doesn't allow category rearrangement. But if you print out the data to a textfile on disk, using a label format with the information in the order you want it, you can then scoop the data back in to a new database file in proper order. That may seem like the long way around, but it is possible, and it sounds more difficult than it really is.

That, by the way, is one of the beautiful features of AppleWorks. Most data bases, once constructed, are inviolable as to format. You add or delete a category, and it's time to start all over with data entry. AppleWorks preserves the data in categories you don't touch.

## Movement between Files

The method provided in AppleWorks for transfer of data from one file to another is the Clipboard. If you have two identically-structured files, the method is obvious; the Open Apple-M methodology is described in your manual. Note that such movement is possible only when the files are in the multiple-record screen layout mode.

But what if the database files are not identical? Here's a less-than-obvious feature: you can indeed use the clipboard to move data between files that do not have the same number of categories.

Let's assume you have two files, File A with 5 categories of information and File B with three categories. *If the first three categories of both files are the same*, you can copy or move records between the files with no problems whatsoever. If you move records from File B to File A, the three categories of information from each File B record will occupy the first three categories of newly added records in File A. Categories 4 and 5 of those new records in File A will be blank.

If you move records from File A to File B, the three categories in File B will contain the data from the first three categories in File A. The last data in File A's last two categories will not be transferred. That process provides a rudimentary approach to relational databases; you do not have to retype data categories common to two files.

## Dates/Times

AppleWorks has a neat date conversion feature; you enter "**6 5 1985**" into a category whose name contains the word "Date," and AppleWorks automatically converts the entry to "**Jun 5 85**." There's a similar conversion feature for times of day. In the disk file, months are represented by letters (Jan = A, Dec = L), so it saves storage space too.

Now try to enter "**9 9 1850**," which happens to be the date California entered the Union. You get "**Sep 9 50**." In other words, you can only play in one century at a time.

The chronological sort is just that; you get the information arranged in chronological order. But if you're keeping a birthday list so that you know when during the year to send cards to people, the chronological sort doesn't do it if the data entry includes the year. The solution is to use two categories, one named "Date" (which triggers the conversion) and the other named "Year." That also takes care of the "1850" problem: if you enter "1850" into "Year," you get "1850," just as you wanted. To achieve a chronological sort, you arrange the list twice, first on Date, then on Year.

There's another wrinkle in the date conversion process that's sure to stun you when you first see it. Remember what we said a couple of paragraphs ago: AppleWorks automatically converts entries in a category whose name contains the word "Date." So you print out a file and then scoop an ASCII file into a new database file. Name the categories in the new file, and sort your "Date" category chronologically.

Whazzis? April, August, December, February, January, etc. is not the chronological order of months. The Date thing doesn't work. What you have is the alphabetical sort of months, even though you selected "Chronological".

The clue is this: When you created the new database file from an ASCII file on disk, it provisionally named the Categories "Category01," "Category02," etc. Let's say that your dates were the second category. You changed the name to "Date," but the category name was "Category02," not "Date" when the information was entered into it. No date conversion took place, because the poor thing had no way of knowing that you wanted a date there.

The fix is only mildly tedious. Name the category with "Date," go to multiple-record screen layout and arrange 'em. Use Open Apple-E to set the cursor for strikeover (the box) rather than insert (the underscore) and enter a lower-case "a" on top of the first "April." Watch the "a" flip to upper case as it converts. Now use the Open Apple — (Quote) feature to copy that converted entry down to the other Aprils. Stop short of August, please. Correct and copy August, and you only have ten months to go.

The flexibility that allows us to move data back and forth between ASCII and Appleworks database files means that you can experiment with different categories and layouts. We know business people and computer consultants who set up data bases using AppleWorks as the "development system." After testing and revision, the "real" system is set up, using the monster software. Few of these status-seeker consultants will admit to using a program as "primitive" as AppleWorks, but they do.

Let us hear what you're doing with AppleWorks; we suspect there's a lot more going on than the Blue freaks would have us believe.


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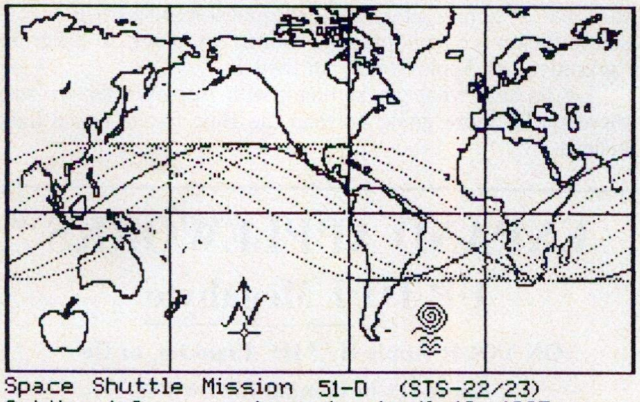
Circle 63 on Reader Service Card

# Review of "Uniprint" Card

**Philip Chien**

**Product:** Uniprint
**Use:** Parallel Interface Card
**For:** Apple II Family
**Company:** Videx
897 NW Grant Ave
Corvallis, OR 97330
(503) 758-0521
**Price:** $89.00
**Availability:** A.P.P.L.E. Co-op $74.00 **HVIDIN**

Figure 1




Printed on the IDS 480 (Microprism) printer with the Videx Uniprint card. Text added with FONTRIX. World map from the Apple Education Demo, orbital plots from my own program, continent Apple provided by J. Appleseed, continent Atlantis provided by Mark Harris.

As of the writing of this article, there are over 100 different parallel interface cards available for the Apple II, ranging in price from $50 to $250, from quick and dirty text only cards to cards including graphics dump capabilities, buffers, and other exotic features. Another?

Actually yes, and it has the best cost/performance ratio of any of those 100 cards. Videx (famous for the Videoterm 80-column card) has come out with "Uniprint" a $89 (retail—available from the A.P.P.L.E. Co-op for $74—product code HVIDIN) card which includes features cards costing $100 or more don't have. The following standard features are built into the Uniprint:

- Text printing (of course).
- Graphics dump for 15 different printers, switch selectable.
- Color graphics for the IDS Prism series.
- Double hi-res dump for the Apple *//e*.

There are other cards on the market with the same features, but they cost at least twice as much as the Uniprint. There are less expensive parallel interfaces available, but they don't have as many features, or technical support. Uniprint is not a cheaply made card; it is well designed, and comes with an excellent manual.

## A Closer Look at the Features:

The card has gold edge connectors, all ICs are socketed, and it is totally compatible with DOS, ProDOS, Pascal, and CP/M—features that are often overlooked in the construction of interfaces. To print the hi-res screens, you just send a CTRL-I G followed by any modifiers you may need:

**D**—double width
**T**—triple width
**R**—rotate picture 90 degrees
**U**—rotate picture 180 degrees (upside-down)
**2**—use page 2 of hi-res instead of page 1
**C**—dump color graphics to an IDS Prism
**I**—reverse black & white
**X**—print double hi-res

The commands are as easy to use as the CTRL-D command used with DOS and ProDOS commands. The sample picture in Figure 1 was dumped with the following program:

```
10 PRINT CHR$ (4);"PR#1": REM Uniprint in Slot 1
20 PRINT CHR$ (9);"GD": REM Set double size mode
30 PRINT CHR$ (4);"PR#0": REM Printer off
40 END
```

Changing the parameters in line 20 will change the size, color and other attributes of the picture dumped. For example, the command sequence CTRL-I G T R I will print a picture triple size, rotated 90 degrees, and in inverse mode.

The standard Uniprint card will operate with dozens of different printers. To select different printers, just flip the switches on the card. The following printers are supported in graphics mode:

- IDS: 460, 480(micro Prism), 560, Prism 80, Prism 132
- Okidata: any model with the Okigraph ROMs installed
- Epson: any model with Graftrax or Graftrax Plus
- Mannesman Tally: entire line
- Apple: Dot Matrix Printer
- C. Itoh 8510
- Nec: 8023A
- Gemini: 10 and 15
- HP: Thinkjet

- Anadex: 9501, 9501A, 9000, 9000A, 9001, 9001A, 9500A
- Centronics: 739-1
- Leading Edge: Gorilla Banana, Prowriter, Prowriter II
- Commodore Vic, and Radio Shack DMP-100

The card is switch selectable to automatically formfeed at the end of the page, and software commands can easily overide the switches. This is one feature I wish every printer interface had. For word processing and output from programs which format their own text, automatic form feeds are a pain in the neck. But when generating program listings, and programs which can't determine where the end of page is, an automatic form feed will prevent the printer from printing on the perforation. I've had no problems using the Uniprint with any text programs and very few problems with graphic oriented programs. When I've used programs where the Uniprint isn't listed in the configuration menu, I've selected 'Practical Perpherals Microbuffer" and printed graphics without any problems.

Unfortunately Color graphics are only supported in the standard Apple II Graphics modes on an IDS Prism. Other color printers, such as the Transtar P315 and Epson JX-80 are only supported in their black and white modes. Even if you have a color Prism printer, you can't dump a color double hi-res picture from an Apple *//e*. Black and White Yes, Color No. Granted, there aren't too many color double hi-res pictures available now, but more programs which support color double hi-res are becoming available every day, and I'd like to be able to dump them as well.

## Attention IDS Printer Owners

The Uniprint card comes with the standard cable to connect to a 36 pin Amphenol connector used by almost all parallel printers. Unfortunately, the IDS series doesn't use the standard 36 pin Amphenol connector. It uses a DB-25 connector, and since the Uniprint card does not use the standard Apple parallel card 20 pin connector (it uses a more logical pinout which makes cables easier to wire for some printers) you can't use the normal Apple to IDS cable sold by IDS. Fortunately, the cable is fairly simple to wire, and both the Uniprint, and IDS manuals include enough information. Table #1 shows the proper wiring diagram for the cable. After wiring the cable, check that there are no shorts, clamp on the hood, and check out the cable. Should you be unable to wire your own cable, or obtain one, IDS sells an adapter cable (pn# 6036-001-210) which adapts the IDS printer to the standard 36 pin connector. Do not get the normal IDS to Apple cable. *It will not work!*

## Limitations

- Uniprint will not dump graphics to any letter quality printer (you still have to use a dump routine from a program).
- It's firmware is not redefinable, as opposed to the PSIO card where the entire card can be reconfigured.
- It will not work with a serial device (e.g. the Apple Imagewriter).
- It does not have a buffer (although an external buffer can be used)

If you are thinking about getting a printer, or if you already have a printer and want to be able to dump hi-res graphics without using a program, then the Uniprint is an excellent choice for an inexpensive parallel graphics printer interface for the Apple II, and Apple *//e*.

## Table -1: Uniprint To IDS Cable Wiring Instructions

To wire a cable, you'll need the following items: a 20 Pin crimp connector attached to a ribbon cable, a DB-25 Female connector, solder, a hood, etc. Crimp the 20 pin connector to the cable, and wire the cable as follows:

**Table 1**

| IDS end DB-25F | Uniprint end 20 pin conn. | Purpose |
|---|---|---|
| 3 | 1 | STB—strobe, this is the signal from the Apple to the printer to indicate it is sending data. |
| 14 | 2 | DB0—this is the low order data bit |
| 13 | 3 | DB1 |
| 12 | 4 | DB2 |
| 11 | 5 | DB3 |
| 10 | 6 | DB4 |
| 9 | 7 | DB5 |
| 15 | 8 | DB6 |
| 16 | 9 | DB7—this is the high order data bit |
| 22 | 10 | ACK—this is the signal from the printer to the Apple to indicate that it has received the data, and is ready to receive more. |
| 7 | 11 | GND—this is the signal ground |

The Uniprint card comes with the standard cable to connect to a 36 pin Amphenol connector used by almost all parallel printers. Unfortunately, the IDS series doesn't use the standard 36 pin Amphenol connector. It uses a DB-25 connector, and since the Uniprint card does not use the standard Apple parallel card 20 pin connector (it uses a more logical pinout which makes cables easier to wire for some printers) you can't use the normal Apple to IDS cable sold by IDS. IDS sells an adapter cable (pn# 6036-001-210) which adapts the IDS printer to the standard 36 pin connector. Do not get the normal IDS to Apple cable. *It will not work!*

*[Update: After this article was typeset, we received information that Videx has recently added support for color printing on the Epson JX-80. Contact your dealer or Videx for details.]*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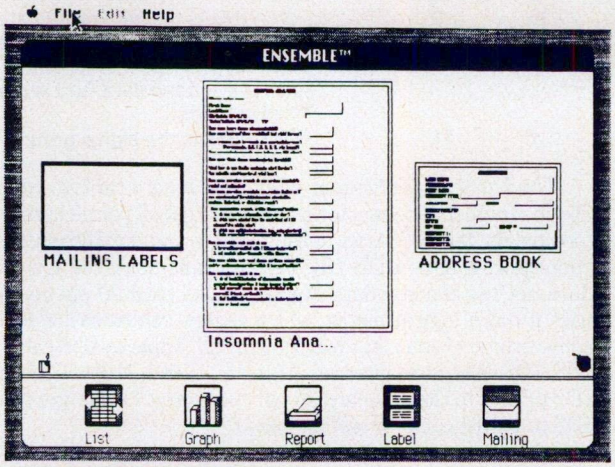
Circle 65 on Reader Service Card

# Review of "Ensemble"

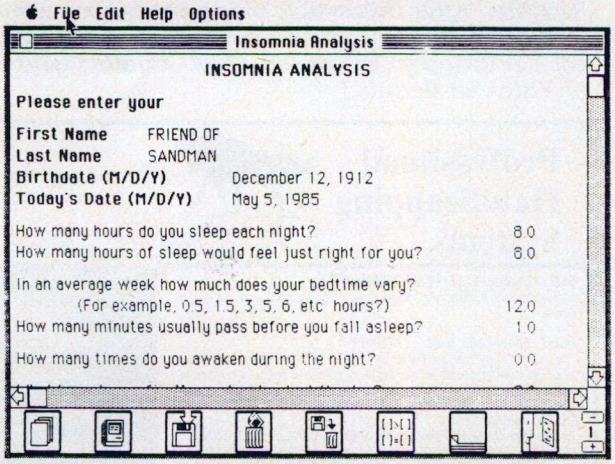
| | |
|---|---|
| **Product:** | Ensemble |
| **Use:** | Data Base |
| **For:** | Macintosh |
| **Company:** | Hayden Software<br>600 Suffolk Street<br>Lowell, MA 01853<br>(617) 937-0200 |
| **Price:** | $299.95 |

**Michael & Lisa Storrie-Lombardi**

1




2


File Edit Help Options
Insomnia Analysis
INSOMNIA ANALYSIS
Please enter your
First Name FRIEND OF
Last Name SANDMAN
Birthdate (M/D/Y) December 12, 1912
Today's Date (M/D/Y) May 5, 1985
How many hours do you sleep each night? 8.0
How many hours of sleep would feel just right for you? 8.0
In an average week how much does your bedtime vary?
(For example, 0.5, 1.5, 3, 5, 6, etc hours?) 12.0
How many minutes usually pass before you fall asleep? 10
How many times do you awaken during the night? 0.0

In the midst of a flurry of premature press releases about integrated vaporware, Hayden Software quietly beat all the competition to the marketplace with the release of *Ensemble.* Not only were they first out of the starting gate, but they also appear to have scooped the field in finding a real market niche. To date most integrated systems have used the spreadsheet as the central module. These have suffered because a spreadsheet-based application really focuses on the accountant style of data management without addressing the broader and more complex decision formats used by most private individuals and small businesses. Hayden has chosen a program that uses the relational data base as its integrating concept. This format much more closely approximates the way we regular humans collect data, change it into information, and use that information to change our world.

## What You Get

Developed in France by Controle X, Inc. this product comes to you wrapped up like a box of fine chocolates with loads of goodies inside: two manuals, a Guided Tour Disk, a Sample Programs Disk, and a Master Disk. The main manual comes with both a standard index and a functional-category index, e.g. data management, report generation, mail/merge, calculations, creating a form, graphics, and word processing. The double indexing really helps when you run into unknowns.

The second manual has the innocuous title, *Examples.* Hayden must have a modest streak, as it more closely approximates a very useful collection of templates. The user has immediate access to programs for label creation, mail/merge, purchase order file, invoice data forms, budget files, budget graphics, budget spreadsheet, pro forma profit/loss, sales analysis, personal net worth, and text/graphics interface. With the supplied formats, we were immediately able to set up the S.I.G. mailing lists and label production system.

The Guided Tour Disk demonstrates the system quite well. The demo makes data management and basic report generation techniques clear to even the casual user.

The Master Program Disk loaded directly into our Lisa's Profile without a whisper of copy protection nonsense. The manual says to make all the copies you need and file away the original. We certainly did that with Lisa, but on Mac the standard "Microsoft type" protection seems to surface, i.e. after you boot up the working copy it asks once to see your original.

## Using Ensemble

When you open up the central desktop (shown in Figure 1) you see 5 primary icons at the bottom that let you move between List, Graphics, Report Creation, Label Production, and Mailing. Your active files appear in the large center window and constitute the sixth icon category. Ensemble can keep up to 3 files active at any one time. It presents a reduced, full-page version for you to double-click for ac-

tivation or to give you an idea of what the file input or output format will look like. The file menu allows you to activate other files when you clear some room on the desktop by removing one or more of the 3 active ones. Ensemble can pass information between any files on the desktop.

If you double-click the desired file you move to the Entry/Design window (Figure 2) shown here in Entry format. You can free-form set up static text fields, variable text fields, and numeric fields in fixed, floating, or date format. The nine (9) icons at the bottom allow you to decorate your form, design the entry/output layout, enter/change static text or data, toggle to the computation/selection/sort window, erase fields, show a reduced image of the input/output page, and move forward or backward to other pages in your report. The eraser works by placing the pointer and single clicking. It has no "undo' feature.

If you move into the Computation window, you will see the fascinating screen shown in Figure 3. With windows like this, people unaccustomed to thinking they might program a computer to do their own very personalized work can now enter the world of application programming with excitement instead of dread. The upper half of the window displays your programming (computing) handiwork. The bottom half includes your files on the left side, with computations/instructions available on the right and in the central calculator. All fields and instructions can be entered by mouse, or you can edit from the keyboard. The list of numeric functions includes: sine, cosine, tangent, arc tangent, base 10 logarithms, Naperian logarithims, exponentials, square root, integer, decimals, power of 10, X to power Y, Compound interest, and Annuity. You can add others as fields. Logical assessment criteria can also include =, =NIL, # (for Not Equal), # (for Not Empty), > , < , > = , < = . Amazingly, you can also ask Ensemble to take a look for information you have not catalogued properly or have forgotten exactly how it was originally entered. For example, you can ask Ensemble to search for a given keyword *embedded* in a field, or find a string of letters starting or ending the information within the field.

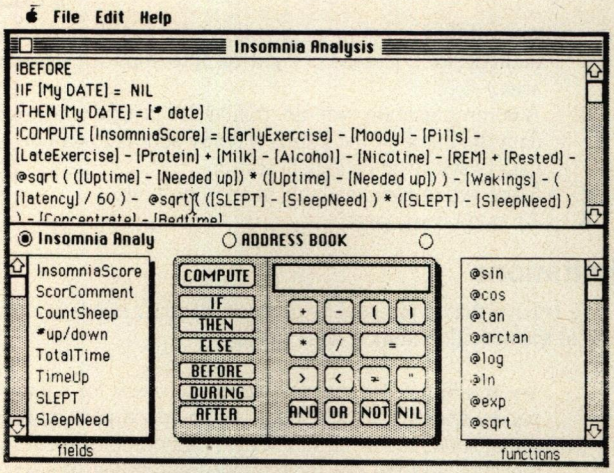
Graphics input can occur from the keyboard or from the selection window. The Selection Window looks almost identical to the Calculation Window, except the Compute, If, Then, Else, Before, During, and After keys now read SELECT, SORT, LIST, GRAPH, and REPORT. You simply instruct Ensemble on how you would like your data sorted, give selection criteria if needed, pick one file as the horizontal or vertical scale depending on the type of graph you want (it will also appear as the title of the graph), and then choose any 4 other files for the columns, areas, or pie sections. As you can see in Figure 4, Ensemble has 10 basic graph formats available (plus a data sheet), and you can use menus to toggle between 2-D or 3-D. The graph here shows in 3-D bar chart style the quality of sleep as a function of dietary factors and the effect of sleep patterns on mood. We generated the graph directy from data originally entered on a patient questionnaire created by Ensemble. We used the keyboard only to type in the two descriptors: "Poor Sleeper" and "Olympic Sleeper." The arrows came from the OPTIONS menu. We then used the same data base to generate a specific personalized report for each subject critiquing individual characteristics of his or her sleep pattern (19 examination items collapsing into 7 factors affecting sleep and daily functioning).

## Weaknesses

We enjoy using this program but would like to see several alterations. The big ones on our list include:

1. Completely open copy system.
2. Ability to access system fonts. There is only one available font at present, and style changes seem limited to changing a whole field.
3. Support for automatic scrolling badly needed in design, entry, selection, and computation windows.
4. On-Screen preview needed for the report generation module.
5. More efficient function switching. (Toggle functions bet-

3

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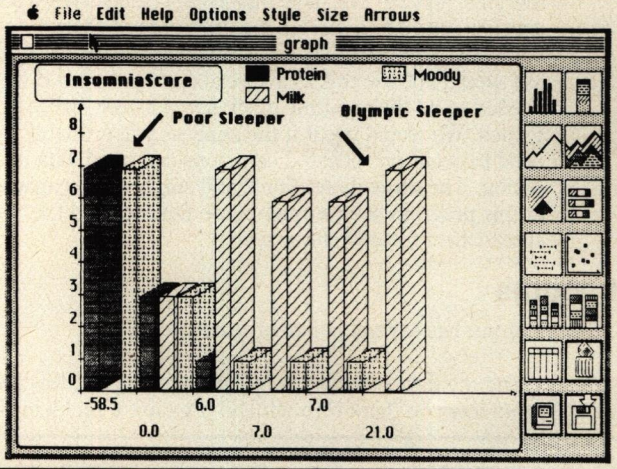



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ween different components often take you through the main desktop instead of right back to your last working area.)

6. A communication module. (Since this program considers data the name of the game, a ready access to on-line data bases seems a logical step.)
7. More active files available at any one time.
8. An undo command.

## Limitations

We believe that every review of a new product needs to outline some of the specific things it does *not* do.

1. We would not use this as a word processor for a long paper, scientific article, book, or any document where fonts, style, super- or sub-scripts, annotations, centering, margins, and the like have major importance. We would certainly use it to generate the multitude of short business letters that plague us repeatedly.
2. We would not use this as a spreadsheet program if we needed to do the one-time quick spreadsheet "what-if" games. We would use it if the analysis will probably need to occur on repeated occasions and need data updating. The three dimensional and single entry capacity of this program seems much more flexible than the spreadsheet tools we have seen.

## Strengths

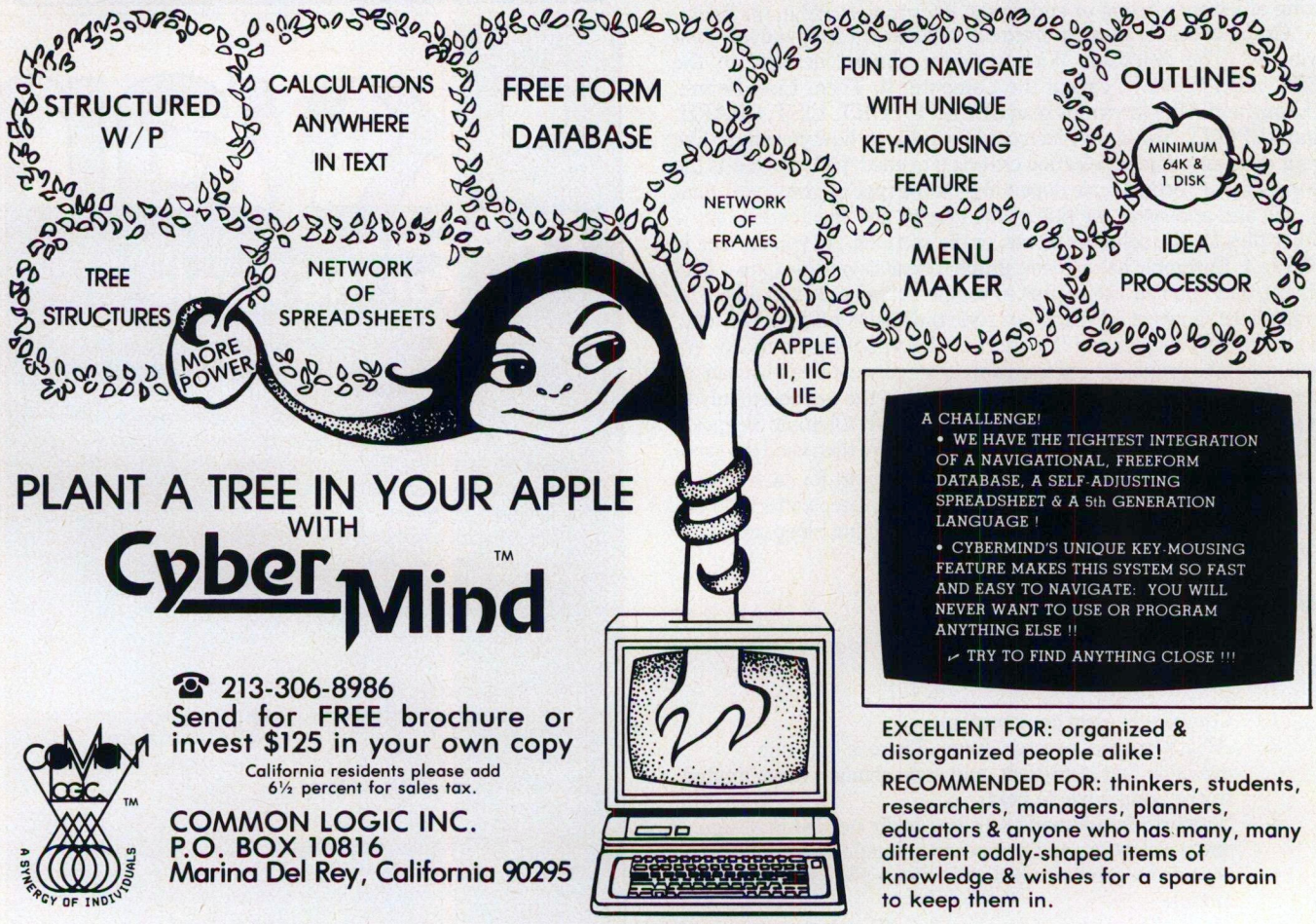
This program has several standout features:

1. Using the data base as the integrating concept, this program lets you think through and organize a problem solution with an ease not found in spreadsheet-oriented integrated programs.
2. We have found it easy to let his program help us do several things at the same time. For example, in the past 2 weeks;
   a. we learned how to use the program itself;
   b. designed a patient interview format for our psychiatry practice;
   c. set up a miling list for *Lisa/Mac S.I.G.;*
   d. generated the mailing labels for a newsletter;
   e. started the data collection process for a book.
3. The program allows quick output of information in both verbal (report) and visual (graphic) formats.
4. When we demonstrated the program to a professional colleague (familiar only with Multiplan and Write/Paint), the basic structure of data base management became clear to her in a matter of 5 screens.

## Summary

We think Hayden has not only come up with an excellent product, but may have also pinpointed an enormous niche (hole?) in the personal computer marketplace. Except for all of us computer addicts, our little silicon friends will only enter the lives of many talented people when they offer leverage to significantly alter our daily environment. Our primary techniques for 'terraforming" center around the collection, organization, and transmission of data as efficiently as technologically possible. We consider Ensemble the current state of the art for a stand-alone information workstation targeted at knowledgeable current users and talented onlookers.

*Note: This review originally appeared in A.P.P.L.E. Co-op's Lisa/Mac SIG newsletter* 32 Little Apples *edited by the authors.*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# Something Over 32 Bits

**Questions & Answers About Apple's Lisa and Macintosh 32-bit Computers**

**Dave Redhed**

On June 19th there was a "LisaTalk Teleconference" co-sponsored by The Peninsula Lisa Users Group (P.L.U.G.) of San Francisco and The Networkers. From the letter of invitation I received, "The primary objective of LisaTalk will be to provide Lisa end users, Apple representatives, third party developers, and esteemed members of the press the opportunity to 'electronically discuss' the needs and concerns of the Lisa community." The actual participants included two people from Apple Computer, several 3rd-party Lisa/Mac XL developers, some user group representatives, and a number of other people who have been involved heavily with Lisa and the Mac XL.

I have not yet received a printed copy of the conference in order to verify precisely who was present, but I counted a total of 24 people who contributed something to the dialog. The conference lasted for almost two hours, allowing for quite a number of interactions between the various participants. The type of interaction in this conference was a little different from the kind that I have experienced on Compuserve. Prior to this conference I had not heard of The Networkers nor was I aware that they provided some services to Lisa/Mac users. Up to this point they have been occupied with activities in the immediate San Francisco area.

If anyone is interested in contacting them, write to Lewis Guice at 3500 Market Street, Suite #103, San Francisco, CA 94131, or call him at (415) 550-1710. The Networkers will be publishing the conference content in July for a price of $5 or $10.

## How Did The Conference Work?

I will try to describe just how this conference was conducted and my impressions of its effectiveness. Once you were logged into the conference you could just sit back and watch the action if you didn't care to ask your own questions. Under these conditions you would see all comments and questions given by the other participants in the following form:

> [97] Por (George)
> So, now we heard of Apple's support as far as servicing Lisa/Mac XL through Apple's dealer base. The quality of this support is still something to see. I guess it will be rather uneven 'cause dealers uneven profit margin on service jobs...
> When can we expect the migration package, and debugging MacWorks and Lisa 7/7?

This was the 97th message of the conference and it was given by George Por (or whoever was currently typing at the terminal which was logged in with George Por's name). You see your own message as it is typed in, but when you send it, you do not see it displayed again as it is seen by all other participants. In between messages from participants you would also see status messages like the following:

> Now typing: Dickey (Joan), Por (George), Schmucker (Kurt), Day (John), Guice (Lewis), Stubbs (Gordon)

Since each message you type is collected until complete, other people do not see the message line by line as it is typed. The above status line gives you an idea as to how many messages are on the way, and I liked that aspect of this conference.

As the conference progressed I felt that someone should have imposed some order

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on the way questions got asked and answered. While I appreciated the freedom to insert a question whenever I liked, I would have traded that for an assurance that my question was going to get answered. I had a good interchange with Kurt Schmucker, but our dialog went on in the middle of the main conference and was (I assume) largely ignored by others. I asked several questions of Stephanie Littell and did not receive answers to any of them. I do not know if this is because she was busy answering other questions, she did not understand my questions, or they just got lost in the shuffle.

I think that we might have reserved a time just for questions directed to Apple. We could have been allowed one question each and then everyone would stop asking and read the answers. This would have created a possible dead period when we would be waiting for typing and for another round of questions to show up, but I think I would have had some greater confidence that my questions would be addressed. Had I been interested only in reading what others were saying, the way it worked would have been very good.

## What Was Said In The Conference?

Stephanie Littell was the primary voice from Apple (Larry Rosenstein was also at her terminal) and, considering the situation, she did a good job handling the questions put to her. (She made a special sacrifice to be at this conference because it was her birthday.) This conference was scheduled before the shift in Apple corporate management and held during the fallout of the changes. Stephanie acknowledged that the internal restructuring was making it difficult for her to respond to a number of things. So, quite understandably, Stephanie had some problems giving us all the assurances we were seeking.

A great deal of concern was expressed about the actual carrying out of Apple's promise of "..service and support.. for at least the next five years." Spare hardware parts and hardware service is relatively easy for most people to visualize, but other kinds of support all users need is already hard to find. Most dealers want nothing do do with Lisa or the XL and, more significantly, do not know very much about them. Joan Dickey (President of the P.L.U.G) made a strong pitch to Apple to consider special kinds of support directly to Lisa and Mac XL owners, but there was no answer from Stephanie. Clearly she could not make any such commitment on the spot.

Apple's migration package from Lisa to Mac is almost ready for distribution. This package is a one way transfer—Lisa to Mac. Several people at the conference made reference to a two-way file movement facility that uses a clipboard accessible to both Lisa and Mac. It has never been made into a product, and Apple does not advocate its use since it has not been fully checked out. However, copies can be found if one knows the right people. Those in the conference who have used it have not had problems with it. There was a strong complaint about not being able to use hard disks for MacWorks unless they are on the built-in parallel port. Stephanie's reply indicated that there are no plans to extend MacWorks to the profiles connected through a parallel card.

Two of the 3rd party developers had some encouraging words for us. AST Research (which markets a two-megabyte RAM board for Lisa) stated that they may do additional products in the future. They gave no concrete evidence that anything is currently in development, but they seemed open to suggestions. INFOSPHERE (which has been shipping their XL/Serve since mid-June) was very positive about Apple's support during their development. I have not seen their product yet, but they say that "XL/Serve was designed to ease that migration by providing much of the system level support from 7/7 to the MacWorks environment." They were also quite complimentary about the final version of MacWorks. While the conference was planned as a one-time affair, the possibility of regular conferences was brought up. Everyone was positive towards that prospect, but I have heard nothing since that time. I don't know for sure if Apple will want to continue the dialog about Lisa and the Mac XL, but I think it would be a fairly inexpensive way for them to create a little good will among people who feel a little estranged.

## What Ever Happened To The TUG?

The ToolKit Users' Group is still active with about 115 members who are not sure what to do next. Except for those who just wish to develop their own personal software, the ToolKit is strictly of historical interest. There is now a counterpart to the ToolKit for the Macintosh and it is called MacApp (for Macintosh extendable application). Currently this software is available only under the Lisa Pascal Workshop, and I would guess that it will not be on Macintosh until Apple has created a Macintosh facility comparable to the Lisa Workshop. Also, there is a new Pascal compiler called Object Pascal which is oriented strictly to the Macintosh.

TUG is in the process of deciding whether to substitute MacApp for the ToolKit or to focus itself more broadly towards object-oriented programming in general. (Kenneth Keating, a TUG member, suggested we do the latter and call the group 'Object-Oriented Programming Systems," or OOPS.) Personally, I believe that the group will have to orient itself to MacApp in some significant degree since there appears to be very little action outside of Apple that I can find. If others know differently, send me the specifics.

## This Column Has Run Its Course

This may be the last of these columns I will write. Having invested two years of my life and considerable other resources in my pursuit of Lisa, I have now taken a job back with my previous employer. The Lisa "accident" at Apple has run its course, and I am not highly motivated to chase after the Macintosh. The Mac is a good computer and, in time, it may even be a great computer; but I do not think that Apple will bring back the Lisa concepts that are important to me. I really have tried to make a go of it with the Mac, but I find it a little discouraging at this point. I do not feel that I am staying with the Mac well enough to be of service to those of you who want good information that is highly useful. A.P.P.L.E.'s Lisa/Mac SIG newsletter ('32 Little Apples') will soon be widely available, and they have a number of very capable people to help out the Mac community. *MACazine* has asked me to write a column devoted entirely to the community of Lisa/Mac XL owners. That may be of interest to the half a dozen or so Lisa/Mac XL owners who read *Call-A.P.P.L.E.* To the rest of you who have followed along with this column for other reasons, I wish you good fortune in all you do and trust that the *32 Little Apples* publication will meet your needs for timely and useful information.


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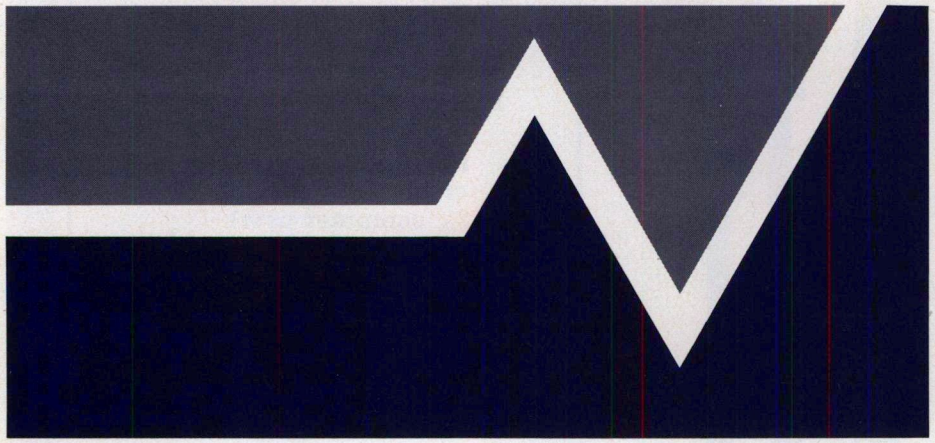

Bruce F. Field

## BACK 'EM UP

A little while ago I had a question about making a backup of a text file from an Applesoft program. I suggested that the person write two text files at the same time, effectively creating a backup. Dale Meyn has another solution. He says copying a file can be accomplished easily by alternately READing from and WRITEing to the previously opened files. He included the program below as an example.

```
 20  D$ = CHR$(4) : RT$ = CHR$(13)
 30  HOME
 60  INPUT "WHAT IS THE ORIGIN
     FILE NAME?"; F0$
 80  INPUT "WHAT IS THE COPY FILE
     NAME?"; FC$
100  INPUT "WHAT IS THEN ORIGIN
     DRIVE#?; OD
110  INPUT "WHAT IS THE COPY
     DRIVE#?; CD
150  PRINT D$"VERIFY"; F0$;",D"; OD:
     REM DON'T CREATE EMPTY
     FILE
160  PRINT D$"OPEN"; F0$
170  PRINT D$"OPEN"; FC$;",D"; CD
190  ONERR GOTO 300 : REM STOP
     WHEN END-OF-FILE MARKER
     DETECTED
200  A$ = "" : PRINT D$"READ"; F0$
210  GET AA$: IF AA$ < > RT$ AND
     AA$ < > "," THEN A$ = A$ + AA$:
     GOTO 210
250  PRINT : PRINT D$"WRITE"; FC$ :
     PRINT A$
270  M = FRE(0) : REM CLEAR UNUS-
     ED STRINGS
280  GOTO 200
300  POKE 216,0 : REM TURN OFF
     ONERR
310  PRINT : PRINT D$"CLOSE":
     PRINT : PRINT CHR$(7)
```

Dale's program uses GET to read the origin text file rather than INPUT, as INPUT can't handle things such as colons and commas. Dale says his program is by no means as fast as FID, but it doesn't take unduly long for reasonable-length files.

## BOOT THE DATA DISK

A few months ago I had a question on using Artsci's Magic Office System on the Apple II+ with an 80-column card. Robert DeFrancesco was kind enough to write with the following solution.

"I, too had similar startup problems with this program on my Apple II+. A quick call to Artsci gave me the needed information. I had to first boot the data disk that comes with the package. This brings a configuration program into action which lets the user choose from a large number of 80-column cards and various other computer configurations. The user can now customize a copy of the program to run on a particular computer.

"I must comment that this information was not anywhere in the Magic Office System package, but must be learned by calling Artsci. Also, the manual for this program is written around the Apple *//e* and *//c* keyboards, but will definitely work with a II+ if a few tricks are used. I only knew about these since I had the manual for MagiCalc and Magic Window, which are part of this program. Artsci did say that they should have a new manual out by this time, but I never bothered to check with them again."

## EMBEDDING MONITOR COMMANDS

Donald Ruch of beautiful downtown Burbank has written with some more information about the S. H. Lam routine that allows you to embed monitor commands in Applesoft programs.

"The article omitted clarification of "N D9C6G" and its application in loading lengthy binary files, namely:

```
 30  GOSUB 63000
 40  REM REST OF PROGRAM
 50  END
63000  A$ = "8000:A9 0C 85 38 . . . (35
       additional bytes) . . . A9 01 8D"
63010  GOSUB 63200
63020  A$ = "802A:A2 00 8A 20 . . . (35
       additional bytes) . . . B1 28 C9"
63030  GOSUB 63200


63050  RETURN
63200  A$ = A$ $ "N D9C6G" : FOR I = 1
       TO LEN(A$) : POKE
       511 + I,ASC(MID$(A$,I,1)) + 128 :
       NEXT
63210  POKE 72,0 : CALL -144 : RETURN
```

"Since CALL -144 scans the buffer and executes its contents, "N D9C6G" is a return in RUN mode to Applesoft control. Put another way, "D9C6G" permits the use of CALL -144 within a subroutine without compromising the return address.

"As you undoubtedly already know, loading large binary files with this device is not as fast as a separate BLOAD directly from code, but "D823G" works fine in the range of 50 bytes in one line. Anyway it's hats off for S. Harvey Lam and his cute tricks!"

## PRE-BOOT DEFINED

**Q.** *What is "pre-boot"; what does it do; and where can I read more about it?*

**A.** Pre-boot is an operation such as running a utility program before running the main application program. This is usually done to change or modify the application program to work with specific hardware that the program was not originally designed to use. A typical example with Apple II computers is a pre-boot program to modify a word processing program to work with a particular 80-column card. The pre-boot program is available from the manufacturer of the 80-column card and will only work with the exact 80-column card and word processor specified.

The term pre-boot comes from the term "boot" or "boot up" a computer system which means to start it up, load in any required operating utilities, and start a program. Most pre-boot programs are designed to operate with commercial application programs that completely control the operation of the computer once they are "booted" or started. Thus, if the application program is to be modified, the pre-boot program is run first to load the application program and modify it before it turns control of the computer over to the application.

*[Many computerphiles believe that the term "boot" is an abbreviation of "bootstrap program," which derives from the paradoxical concept of "pulling oneself up by one's bootstraps," referring to the self-initialization*

*process following power-on. A plausible alternative interpretation is that some of the early Apples required a swift kick to get going.—Ed.]*

## "PROGRAM TOO LONG?"

**Q.** *I have used the Micromodem modem and Smartcom I terminal program to download an Applesoft file from the transfer system. When I go to run the program I get a message "PROGRAM TOO LONG." The catalog indicates that the program is only 31 sectors. Help!! What's wrong?*

**A.** When an Applesoft program is stored in a disk file the first two bytes in the file are the number of bytes in the program. The program follows these two length bytes. It sounds like these two bytes are either missing or incorrect. DOS checks these two bytes before loading the program and if they indicate a length that is too large, you get the "PROGRAM TOO LONG" message. Fixing this can be difficult.

There are several possibilities as to what is actually stored on the disk. The file could actually be an Applesoft program with the length bytes missing or the length bytes incorrect. Normally Applesoft programs are saved with keywords and commands replaced by one byte numbers. However, the file may actually be a text file listing of the Applesoft program where the file type was later changed from text to Applesoft. Text files start out directly with the text; there are no length bytes at the beginning. Applesoft programs saved as text files are saved exactly as they are listed on the screen with all the keywords spelled out. In any case, you will need a Disk Zap program that allows you to read individual sectors on the disk. Refer to your DOS manual to find out where on the disk (in which sectors) the file is stored. Then you will need to examine the file and add or change the first two bytes. If the program is actually stored as a text file you should be able to EXEC it into memory after changing the file type from Applesoft to text. I'm sorry, I can't be of more help without knowing exactly what is stored on the disk.

## PROBLEMS IN SLOT 6

**Q.** *I have a spare II+ that causes any good disk drive to act flaky only in slot six. Any direction pointing towards the problem would be greatly appreciated.*

**A.** Most likely the problem is a bad electrical connector for that slot. The first step is to spray some contact cleaner on the contacts and inspect them to make sure none of the contacts are bent or broken. If everything looks okay, you could try replacing the 74LS138 decoder chip at location H2 on the motherboard. The 74LS138 controls the "device select" signals to the slots. If this still doesn't work, I think it's time to replace the 50-pin connector for slot 6. This is a little tricky to unsolder and remove without damaging the motherboard. The best solution I have found is to break up the plastic part of the connector with a pair of pliers leaving only the spring contacts still soldered to the board. Then you can heat and remove each contact individually.

## PRINTING IN 80-COLUMN FORMAT

**Q.** *I have an Epson FX80 printer with a Quadram APIC-G parallel interface card. How do I get it to print in 80-column format?*

**A.** This question comes up regularly and is not adequately discussed in any manual. In general, from within a BASIC program you should be able to print as many characters as will fit on one line of the printer. Try this program.

```
100  PRINT CHR$(4)"PR#1"
110  FOR I = 1 TO 80 : PRINT "A"; :
     NEXT I : PRINT
120  PRINT CHR$(4)"PR#0"
```

This should print 80 A's across the page. When you are LISTing a BAS IC program the LIST command checks to see if the printing is getting near the edge of the screen, and if it is, the BASIC interpreter forces a carriage return. This means you get those hard to read program listings where the lines are all shorter than 40 columns. To


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stop this you need to send a command to your printer interface card to tell it to send the listing only to the printer and not also to the screen. Most printer interface cards will accept the command PRINT CHR$(9)'80N." This should be done each time after the printer is turned on, i.e. after PR#1, but before you print the listing.

## FULL AND HALF DUPLEX

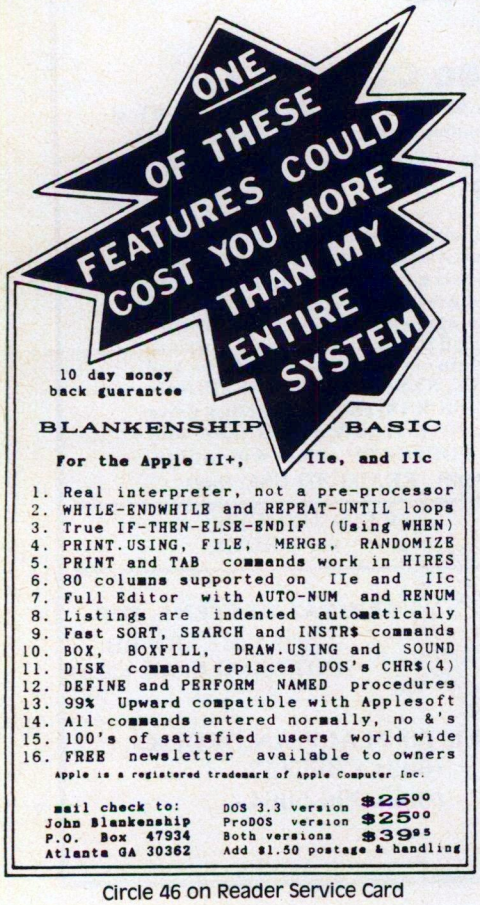
**Q.** *The manual for my Apple 1200 baud modem says on page 25 that F1, a default, is full-duplex transmission mode. On Page 26, under "General Commands," it says F0 sets the transmission mode to full duplex, and F1 sets it to half duplex. So, which one is full duplex, F1 or F0?*

**A.** According to informed sources who wish to remain anonymous F1 is full duplex.

Half-duplex and full-duplex are terms used to identify how information is sent back and forth between your computer and modem and the host computer on the other end of the line. Most bulletin board systems use full-duplex so you won't have to change from the default mode. Full-duplex means that when you type a character on your computer it is sent down the line to the host computer but your computer does not yet print it on your screen. The host computer then sends the character back to your computer which prints it on the screen; thus you can verify that what you typed was received correctly by the host computer. This operation requires that the transmission line (the telephone line in this case) be capable of simultaneous two-way data transmission because you continue sending characters at the same time the host computer is sending the earlier characters back.

For systems where two-way data communications is not possible, you need to use half-duplex. In the half-duplex mode, when you type a character it gets sent to the host computer and also printed on your screen. The host computer simply accepts the character and does not echo it back to you, thus you have no way of knowing if it was received correctly. If you are using a modem, the modem usually determines whether you are operating in full or half-duplex by either echoing the character back to your computer or letting the host computer do the echoing.

Both your computer or modem and the host computer need to be operating in the same transmission mode. It is easy to tell if there is a problem. If you have your modem set to half-duplex and the host computer expects full-duplex, you will get double characters printed on your screen each time you type a character. The modem will send one back and so will the host computer. If you have your modem set to full-duplex and the host computer expects half-duplex, you won't get anything appearing on your screen when you type characters. In both cases, anything the host computer sends to you will be printed correctly.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## SAVE THOSE ROMS

**Q.** *How does one go about saving the contents of the II+ ROMs onto disks as a set of binary files?*

**A.** The ROMs occupy memory addresses 53248 ($D000) to 65535 ($FFFF). To save this memory area you can use the command BSAVE ROMS,A53248,L12288. This technique won't work with *//e*'s and *//c*'s because not all of their ROMs are turned on all the time. There is only room reserved for 12288 bytes in the address space for these ROMs, and more than that is needed for the *//e* and *//c*. So, bank switching is used to turn on only part of the ROM as that part is needed. Soft switches (memory addresses) in the range $C001 to $C00F are used to control which ROMs are turned on.

**Q.** *I am writing in reference to the new Dvorak keyboard. I am interested in knowing if there is a device similar to the Eprom which would allow socketing into the existing character generator socket to change the keyboard entry accordingly?*

**A.** You don't say what model computer you have so I'll try and answer for all three (II+, *//e*, and *//c*). For the II+ you can get the Videx Keyboard Enhancer which is a modified keyboard encoder that plugs on the back of your II+ keyboard. The Enhancer provides for a programmable keyboard so that you can rearrange the keys in any order you wish. In addition it provides a type ahead buffer so you can continue typing while the Apple is busy with other tasks. You can define sequences of keystrokes (macros) that are "typed" whenever you press a couple of keys. Also, a 16 button function strip can be attached to provide 16 additional keys that can be programmed to perform different functions. For the *//c*, of course, there is a switch on the top of the case to choose the Dvorak keyboard layout or the traditional QWERTY. To get the Dvorak keyboard, this switch should be pressed before turning on the computer.

For the *//e* the situation is less clear. The *//e* contains a ROM (like the *//c*) that maps the keyboard into ASCII characters. On the *//c* the input to this chip is connected to the language switch. On the *//e* this input is connected to +5 volts by an X-shaped solder pad on the motherboard labelled X2. This solder pad can be found near where the keyboard cable plugs into the motherboard. To switch to the other keyboard set stored in the ROM (equivalent to pushing the language switch on the *//c*), the X2 solder pad must be filed so the two ends are no longer connected. Also, the solder pad X1 right next to it is presently in two pieces, the space between the pieces must be filled with solder. Assuming the ROM is the same as in the *//c* you should have a Dvorak keyboard. I don't know if the ROMs are in fact the same, but if not, you should be able to obtain the correct one from your Apple dealer.

*[For a more detailed discussion of the Dvorak keyboard on the //e, see the May 1985 issue of* Call -A.P.P.L.E.*—Ed.]*

## YOU NEED POTENTIOMETERS

**Q.** *Over the past few months I have been frustrated to find that some of the software available for the Apple //e (mostly games) require or suggest the use of two joysticks, unfortunately my Apple only has one joystick port, I have seen such mechanisms as the "paddle adapple" and the 'select-a-port." Unfortunately, I do not have an extra $70 to throw around for these and an extra Apple joystick. I do have two Atari joysticks from my old Atari 2600. Can I use these with some sort of accessory (to make the plugs mate) with my Apple?*

**A.** I am afraid you are out of luck in using your Atari joysticks with the Apple. The Apple joysticks have potentiometers that provide two continuous signals based on the X and Y positions of the handle. The Atari joysticks, on the other hand, have only eight contact switches—one of which is closed whenever the handle is moved to the side. There is no indication how far the handle is moved; the switch is either closed if the handle is moved far enough or it is not. So even if you could find someway to plug them into the Apple, they still wouldn't work.

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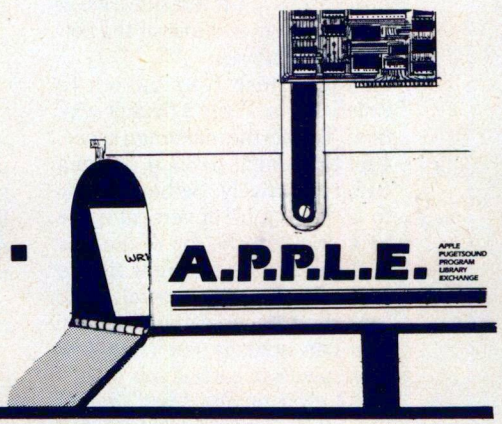


## Readers' forum

### Take a Lesson from Apple Canada

I have recently been reading letters from other members, which detail the appalling lack of customer relations/service on the part of Apple by refusing to answer any customer letters.

I too, found the same thing, following my purchase of a //c in our winter home in Florida. I had some problems and, notwithstanding three letters to Apple, wasn't even treated with the courtesy of an acknowledgement.

Upon my return to Canada, I thought that I would see if the same situation applied there. *It doesn't!* Apple Canada treats customers in the manner one should be treated by a manufacturer who has any pride in his product.

I spent my entire working career in marketing, sales promotion and public relations. I have yet to see any manufacturer who treats his customer with the same disdain as Apple in the United States. It is no small wonder that they are currently "in trouble." I quite agree with a recent Apple article, in *Newsweek,* where it pointed out that what Apple requires is "adult supervision." Whiz kids, like Jobs, are tremendous in the scientific and developing fields; however, they could certainly learn a lot from their elders in marketing and customer relations. Unless they take a few lesson from the likes of Apple Canada, I fear Apple will certainly go the way of the dinosaur. . . the only difference being, they won't have been around so long!

I am certainly pleased that, as an Apple owner, I am a Canadian! God help me and my computer when I return to the States in the fall!

*Ron Hesler*

### A Mac Journal

Congratualations to Ken Watters on what appears to be a no-nonsense, no fluff article about the Mac in the May 1985 issue of *Call -A.P.P.L.E.* The article appears to be just the quality that I enjoy reading. This is the kind of article typical of most of the early *Call -A.P.P.L.E.* issues I've seen.

I would also like to comment on the letter from Peter Michael Fischer (pg. 40). He mentioned how he missed having a newsletter computer journal solely devoted to Apple's 32 bit family. Well, his dream journal exists. I would like to introduce *MacTutor, The Macintosh Programming Journal,* published monthly to encourage programming for the Mac, on the Mac. It is a no fluff, no nonsense and no vapor journal dedicated to programming on the Macintosh.

Issues so far have included technical articles on programming in MSBASIC, Pascal, C, Lisp, Forth, Modula 2, and 68000 Assembly. As BASIC editor for *MacTutor,* I encourage all of your readers to check it out. Subscriptions are available for $24 per year by writing to MacTutor, P.O. Box 846, Placentia, CA 92670, or by calling (714) 993-9939. Dealer inquiries are welcome. We are dedicated to the same spirit of knowledge that filled the pages of early *Call -A.P.P.L.E., Dr. Dobbs,* and other pioneer technical journals that sought to distribute useful programming infomation wihout regard of race, creed or developer status.

*Dave Kelly*

### Forth for the //e

Let me begin by saying I have gotten a lot from my subscription to *Call -A.P.P.L.E.* I'm writing, however, about an out-of-the-ordinary problem. Before I purchased my Apple, I owned a TI 99/4A. I used Forth with that system and really enjoyed it! Now, I'm looking for a solid Forth program for my //e. Can you help? Few people know anything about Forth. I can't find any magazine reviews. Any contacts that you can provide would be appreciated. I am interested in a system with floating point, Hi-Res graphics support, and a liberal licensing policy (I'd like to write and distribute software with Forth as the supporting structure).

I look forward to hearing from you. Any help you can provide would really be appreciated! By the way, have you ever thought about writing a column on languages for the Apple? Most magazines write articles on Applesoft, Assembly, or Pascal; how about all the rest?

*Tony Alley*

*Dear Mr. Alley,*

*Thank you for your compliments and suggestions regarding the magazine. Your question on Forth is well timed. We announced a new Public Domain disk in the June magazine, a Forth demo produced by the club's own Forth Special Interest Group. It is a polished job and should give you a pretty good idea of what is contained in Skyforth, an implementation created by one of the SIG members, Tom Tosch. For more information about Skyforth, and possibly some answers to other Forth questions, write:*

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### Expanding MacWrite's Window

The Macintosh screen is not very large, but this situation is aggravated by Macintosh applications that do not make the most efficient use of what space is available. The most notable is MacWrite, which leaves some grey area at both sides and the bottom of the screen. I found that every time I entered MacWrite, I would have to move the title bar to the left, then use the stretch box at the lower right corner to expand the window.

Finally, after some trial-and-error, I found out that the Resource Editor can be used to modify the default window. If you also frequently expand MacWrite's window, try this procedure.

1. Make a backup copy of your MacWrite disk.
2. Invoke the Resource Editor. If you don't have it, it's available as public domain software from most bulletin boards or from your dealer.
3. Select and open MacWrite.
4. Open "WIND" (the last resource in the menu).
5. Open "WIND ID=301"
6. The top line of the display is labeled "boundsRect" (apparently short for "bounds rectangle"). Four boxes on this line contain the values 40, 3, 337 and 509, representing the position of the top, left, bottom and right side of the window, respectively. (These are the values in MacWrite 4.5; other revisions may be different.) The Mac's screen is 342 x 512 pix-

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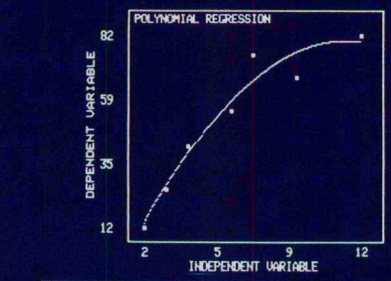


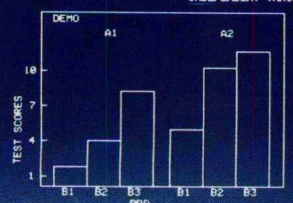


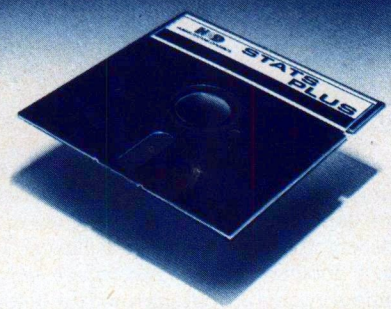


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els, so this definition is wasting three pixels at the left side, two at the right side, and four at the bottom of the screen.

7. Change these four values to redefine MacWrite's default window. To gain the maximum space, I set the bounds to 35, 0, 341 and 515, respectively. Setting the top to 35 gains a bit of vertical space by cutting off the top of the title bar, and setting the right side to 515 gains some horizontal space by cutting off part of the scroll bar. You can actually cut off a few more pixels of each if you wish.
8. *Don't* click on the "Set" box. I haven't figured out what it's for, but it changes all of the bounds to undesirable values.
9. Click on the Close boxes all the way out. Click on Yes when asked 'Save MacWrite before closing?" Now boot the MacWrite disk and invoke MacWrite to see if the desired results have been achieved.

Now if someone could just tell me how to change MacWrite's default ruler!

*Dan Paymar*

## ProDOS B and E Parameters

I must take issue with Sandy Mossberg and his recent letter in the June 85 issue of *Nibble* entitled "ProDOS Stumbles." Glen Bredon has raised a similar issue in Tom Weishaar's latest efforts to start a new publication called *Open-Apple.*

What Sandy and Glen call a serious problem in the BSAVE command of ProDOS BASIC.SYSTEM is not a bug. BASIC.SYSTEM works as designed by the authors of the ProDOS world.

What is not recognized is the power of the B and E parameters added to BASIC.SYSTEM as compared to DOS 3.3. Let me demonstrate by means of some examples.

Suppose one wants the data in $1000-$10FF, $2000-$20FF, and $3000-$30FF stored, in that order, into a single file. The following commands will perform this task.

```
BSAVE DATA,A$1000,L256
BSAVE DATA,A$2000,L256,B256
BSAVE DATA,A$3000,L256,B512
```

Effectively, data has been appended to an existing file in the second and third commands. Sandy is correct in noting that a CATALOG will show DATA to have a "load" address of $1000, i.e., the A parameter in the second and third commands serve only to inform the system where to obtain the desired data in memory. If the "incorrect" address is a bother when retrieving the data from disk, simply BLOAD using the A parameter to override the address given in the file.

Now suppose one performs

```
BSAVE DATA,A$5000,L50
```

A CATALOG will show the "address" of the file still to be $1000 and the length of the file to be 768. What has happened is that the first 50 bytes of the DATA file have been replaced with the 50 bytes stored in memory starting at $5000.

One more observation. Perform the command

```
BSAVE DATA,A$2355,E$23EA,B100
```

Again, the "address" of the file and the length will not be changed. What has happened is that 150 bytes of memory starting at $2355 replace 150 bytes in the existing file starting at position 100 in the file.

One should also note that using the BLOAD command with combinations of the A, L, B, and E parameters shows great power. For example,

```
BLOAD DATA,A$2500,L200
```

loads the first 200 bytes of the file into memory starting at $2500. For another example,

```
BLOAD DATA,A$458F,E$45A0,B123
```

or

```
BLOAD DATA,A$458F,B123,L18
```

loads 18 bytes of the file into memory starting at $458F and taken from positions 123 to 140, inclusive, from the DATA file.

In my opinion, I have shown that the "problem" is really added power for the ProDOS BSAVE command as compared to the DOS 3.3 BSAVE command. Apple has provided a method of randomly accessing binary data files, if one desires.

I can live with the fact that if I want a new DATA file to be shorter than an existing file, I must first DELETE the existing data file. Now Sandy or Glen may argue they want to do this in a program. No problem.

In the program, activate ONERR processing. The PRODOS VERIFY command does not verify the entire file like DOS 3.3. does, it merely checks for the file name in the directory. If the file does not exist, go ahead and create it. If the file exists, delete it under program control, then create it with the new desired length, etc. The length is no longer a problem and valuable disk space is not lost.

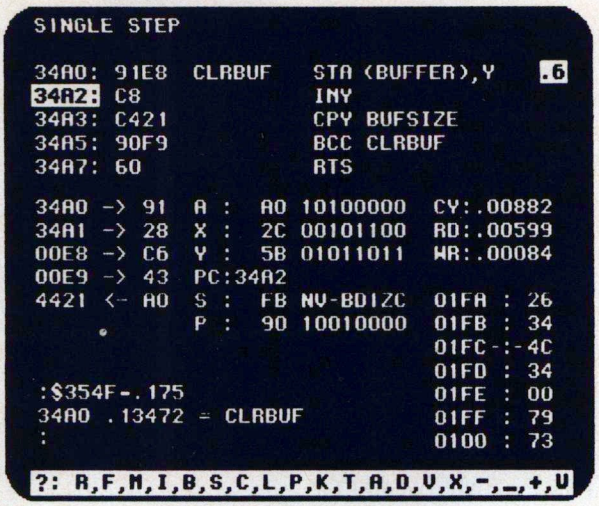
As a closing remark, has anyone tried the ProDOS VERIFY command without a file name? You get the message COPYRIGHT APPLE COMPUTER.

*Cecil Fretwell*

# The Marketplace

The following items are selected by our editorial staff from the large number of product announcements and news releases sent to us daily. They are presented solely to keep you informed about the current market for Apple related hardware and software. As we have not tested many of these products, appearance here does not necessarily represent endorsement or recommendation by A.P.P.L.E. Further information about items appearing in The Marketplace can be obtained through the Reader Service Card. If you contact any manufacturers directly, please mention that you learned about them in *Call-A.P.P.L.E.*

## 6502/65C02 ASSEMBLY LANGUAGE DEBUGGER




**Typical screen display**

Maxwell's DEMON is the ultimate DEbugger/MONitor for assembly language programs on any Apple II, II+, *//e*, and *//c*. It provides all features needed by professional software developers, yet the menu driven commands and detailed screen display help the beginning assembly language programmer to understand the complexities of machine code.

The screen shows what's going on inside the CPU at all times. There is a fully symbolic disassembly, and each memory cycle is shown (effective address and data). Unique UNEXECUTE command backs up & restores all previous conditions. Memory remap allows debugging programs located anywhere in memory. Also included are single step and trace modes, symbolic expression evaluator, and breakpoint on any conditions (even in ROM code). Maxwell's DEMON supports new 65C02 instructions and addressing modes.

Only $49.95 ppd for unprotected disk and 110-page manual. Symbol table converter for Merlin/Big Mac assembler included. Source code available. Visa/MasterCard accepted. *ENHANCEWARE by Dan Paymar, 91 Pioneer Place, Durango, CO 81301, (303)259-3598.* Also available through A.P.P.L.E. Co-op.

Circle 25 on Reader Service Card

## APPLEWORKS TEMPLATES

Save hours of work by loading these templates into your AppleWorks program. ACCOUNTANT ($29.95) monitors income, expenses and tax deductions and budgets for your home or business. PORTFOLIO ($29.95) tracks your stocks, bonds and other investments. FINANCIAL CALCULATOR ($29.95) puts many financial formulas at your fingertips. PAYROLL ($39.95) figures employee pay, overtime, days off, and taxes. These templates require AppleWorks, and an Apple *//c* or 128K *//e*. Contact *Rocky Mountain Research Group, 416 Arnold, Bozeman, MT, 59715, (406) 586-1157.*

Circle 26 on Reader Service Card

## KEEP THAT APPOINTMENT

The APPLOINTMENTS program package allows the user to manage an appointment book using the Apple II and *//e*. Appointments may be viewed directly on the monitor or emulated to the printer. One full day of appointments is visible on the screen and may be scrolled up or down for convenience. This program features user definable starting and ending times as well as appointment separations. You can add or delete appointments or jump to any specified day in the appointment book. Searches may be done by name (or partial name) for an appointee over any specified region of days and/or months in the "book." Over 7500 appointments can be placed on one diskette.

This disk is unlocked and can be copied for back-up purposes. It is user definable and can be listed and changed for your modifications.

Price: $75.00. *ANDENT, INC., 1000 North Avenue, Waukegan, IL 60085, (312) 223-5077.*

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## TELEMAX, INC. Computer Enhancements

**NEW-RGB COLOR FOR APPLE //c, //e, ] [+ and FRANKLIN.**

**TOTAL VIDEO SYSTEMS ★ ★ Complete, ready to go!**

**APPLE-//c:** 13" RGB MONITOR/TV AND TELEMAX "PEACOCK" RGB MODULE, **$499.00**

**APPLE //e, //+**
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**FRANKLIN: $475.00**

SOFTSWITCH, **$45.00**, SWITCHPLATE, **$35.00**
80 COLUMN/RGB BOARD INTERFACE FOR APPLE ] [+, FRANKLIN. Permits 80 column display on RGB.

**Features: MONITOR,** 13" RGB/Composite video monitor/TV, VHF, UHF standard color receiver. 640 x 200 resolution. 80 x 25 character display. Audio inputs, composite and RGB. Green screen switch. Screen compression, for best clarity of computer display. Exceptional color quality, mfg. by Sanyo. IBM-PC compatible. **RGB INTERFACE: Apple //c,** an external module, does 14 comb. of foreground, background colors for 80 or 40 column text, does hi-res & double hi-res graphics. **Apple //e, ][+, Franklin:** plugs into slot 7, text color software selectable, displays 16 colors, displays 80 or more col. text, hi-res & double hi-res graphics.

**For more information, contact: TELEMAX, INC., COMPUTER ENHANCEMENT PRODUCTS,**
**Toll Free: 950-1088, wait for tone then dial TELEMAX**
(Touch Tone only).
**P.O. Box 339, Warrington, PA 18976 — Tel. (215) 343-3000**

***"We turn Apples into gold, with a little alchemy and lots of engineering."***

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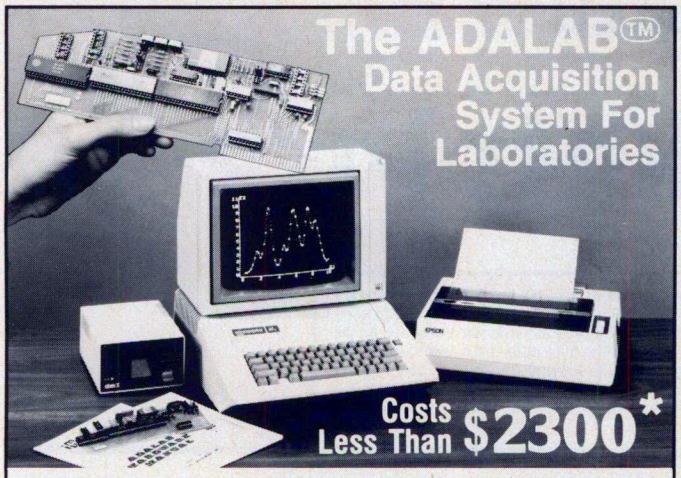


•**ADALAB**™ data acquisition system interfaces with virtually any lab instrument using a recorder or meter, including GC and HPLC systems, spectrophotometers, pH meters, process control aparatus, thermocouples, etc. Thousands of scientists use IMI products worldwide!

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***$2290 price** *includes 64K APPLE† IIe, disk drive with controller, 12" monitor; dot matrix printer with interface; IMI ADALAB™ interface card.*

**$495 ADALAB™ INTERFACE CARD (available separately)**

Attention APPLE Owners

*includes 12-bit A/D, 12-bit D/A, 8 digital sense inputs, 8 digital control outputs, 32 bit real-time clock, two 16-bit timers plus QUICKI/O data acquisition software that works within easy-to-use BASIC.*

***Call, write or telex IMI for complete details!***

*†Trademark of Apple Computer, Inc.*

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**State College, PA 16804 (814) 238-8294**

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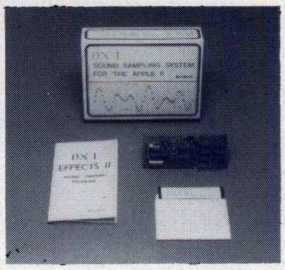
# INEXPENSIVE SOUND SAMPLING HAS ARRIVED

Now you can digitally record and play back any sound musically with an Apple II computer! The DX–1 Sound Sampling System turns an Apple into a sound source for any musical instrument — or a sound effects machine capable of recording and reproducing any natural sound in many creative ways.

- Plays effectively ANY sound musically over at least five octaves
- Samples sounds from external sources
- Easy menu driven software provides many modes of control
- Play DX–1 "live" in two basic modes
- Allows creation of intricate programmed sound sequences
- Select drum rhythms — drum and cymbal sounds included
- On-board high fidelity pre-amp lets you record any signal source
- Excellent for musical and sound effects applications



DX–1 System Price: $349.00

Requires a 48K Apple II+, //e, ///, or Franklin, and one disk drive

CALL OR WRITE FOR MORE INFORMATION

**Decillionix**

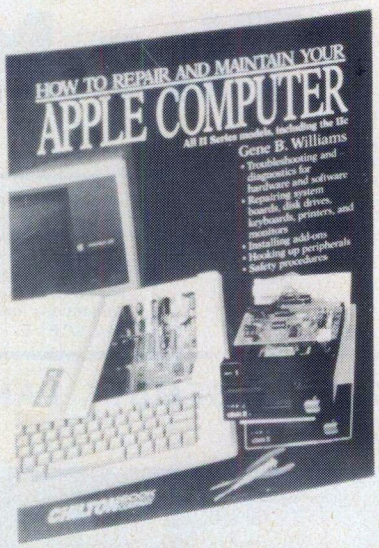
P.O. Box 70985 Sunnyvale, CA 94086 (408) 732-7758

Apple is a trademark of Apple Computer Inc.

Circle 52 on Reader Service Card


# New Products

## HOW TO REPAIR YOUR APPLE




Gene B. Williams' book, HOW TO REPAIR AND MAINTAIN YOUR APPLE COMPUTER, demonstrates how users can become knowledgeable about the working of their Apple II's and learn to maintain and repair them. Comprehensive service procedures for the Apple II, II+, *IIe*, and *IIc* show how to prevent problems and dramatically reduce repair costs. Virtually all work can be done using only a screwdriver, a multimeter, and your fingers.

The guide covers most of the systems and components of the Apple computer, including system boards, disks and disk drives, power supplies, keyboards, printers, and monitors. There are also instructions for installing add-ons and for hooking up peripherals.

Price: $12.95 (please add $1.75 for shipping and handling). Contact: Lori J. Roberts, Coordinator, *Chilton Book Company, Radnor, PA 19089, (215) 964-4758*

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## IT'S ELEMENTARY

HOLMES is a software adventure which allows you to become Sherlock Holmes in Victorian London and be called upon to resolve four cases. You read each, then consider the crime. What will you do? Visit the morgue? Call upon Inspector Lestrade at Scotland Yard, or attempt to obtain more direct information? Each of these takes time, which is of the essence. What's more, what you learn not only depends on who you're asking, but on the time of day and where you've been . . . London changes as you move through it. It's interactive.

In HOLMES, the four cases are original and there is only one logical solution. Sherlock Holmes wouldn't have it any other way. HOLMES is intended for ages 12 and up and runs on any Apple II computer. Price: $24.99, plus $1.50 postage/handling. *Hot Line Software, 1591 Calle De Cinco, La Jolla, CA, 92037, (619) 454-6664.*

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## APPLE II ENHANCEMENTS FROM QUADRAM

*Multicore* is a multi-function, memory expansion board for the Apple II, II+ and *IIe* computers. It provides both a parallel and serial interface and is equipped with a ProDOS compatible clock/calendar, with a long-life lithium battery for time and date-stamping files. Its jumperless set-up permits the user to set baud rate, data format, parity and other parameters through a menu-driven configuration program. Parameters are stored on the board in non-volatile memory. Multicore retails for $219 for OK, $279 for 64K, $329 for 128K and $399 for 256K.

*The Serial Interface Adapter,* is also designed for use with the Apple II, II+ or *IIe* and operates as either Apple's Super Serial Card or Serial APIC C/G Card. It provides graphics support for Apple's Imagewriter and Scribe printers, permitting DOUBLE HIRES and color printing. Settings are selected through supplied, menu-driven software and are stored on the card in non-volatile memory. The card retails for $99.

*Quadram Corporation, 4355 International Blvd., Norcross, GA, 30093, (404) 923-6666.*

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## SUMMER READING

*San Rafael, CA* — Synapse Software, a division of Broderbund Software, announces the release of ESSEX, the second in its series of "Electronic Novels".

ESSEX is an intergalactic search and rescue mission that takes place aboard a starship hurtling through deep space. Surrounded by an unlikely crew of fellow adventurers, the player discovers his mission: to rescue the one scientist capable of preventing the imminent destruction of the universe.

The Synapse Electronic Novels are published as hard-cover books that set the scene and introduce the main characters of each story to the reader, who then loads the Novel disks into his computer and becomes the center of a constantly-changing, interactive universe. The Novels are written by teams of professional authors and game designers, utilizing a sophisticated parser system that is capable of recognizing 1200-1500 words.

Suggested retail price is $44.95 for the Apple version. Contact Latricia Turner-McConnell, *Broderbund Software, 17 Paul Drive, San Rafael, CA 94903, (415) 479-1170.* Circle 31 on Reader Service Card

# MacinPlace

## MOUSE SUBSTITUTE

*Mountain View, CA* — Interfirm Systems Corporation announces McBall, a high performance, low-cost trackball that is directly interchangeable with the Apple mouse. McBall is plug-in ready for the Apple Macintosh, Lisa and *//*c. Operation with II, II+, *//*e requires an Apple Mouse interface card.

McBall features an exclusive *drag button* that enables users to "drag" text, graphics etc., without having to hold a button down. In addition to the drag button, the device offers a *click button* that responds to any software written for use with the Apple mouse.

McBall requires significantly less desk space than a mouse. It can be used on either side of your keyboard, or held in your hand. Also, the trackball's design allows the physically disadvantaged to input to the computer.

McBall is now available for $89.95. Contact: *Interfirm Systems Corporation, 110 Pioneer Way, Bldg. H, Mountain View, CA 94041, (415) 964-4464.* Circle 32 on Reader Service Card

## CUSTOMIZE YOUR ICONS

Icon Switcher is a Macintosh program which lets anyone change, design, or switch application, document, and picture icons with a few quick clicks of the mouse. Icon Switcher allows the user to customize the Macintosh icons and give them a personalized look. The program comes complete with over twenty practice icons and a tutorial. If the user requires more than these twenty icons, PBI has also released *Icon Libraries.* Icon Library #1 is a collection of over 100 business and utilities icons. Icon Library #2 is a collection of over 100 fun and games icons. All of these icons may be used, or changed with the Icon Switcher.

Icon Switcher, Icon Library *#1, and Icon Library* #2 each retail for $19.99. *PBI Software Inc., 1155B-H Chess Drive, Foster City, CA 94404, (415) 349-8765.* Circle 33 on Reader Service Card


**Laing Electronics**

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**SUITE E-203**
**GARDEN GROVE, CA 92640**
**PHONE: (714) 534-4216**

### ★ HARDWARE FOR THE APPLE ★

| | LIST | YOUR COST |
|---|---|---|
| HAYES MICROMODEM //E (+ SMARTCOM) | 329.00 | 224.00 |
| HAYES SMARTMODEM 1200/300 | 595.00 | 468.00 |
| ANCHOR SIGNALMAN MK12 MODEM | 399.00 | 251.00 |
| NOVATION APPLE CAT II MODEM | 319.00 | 198.00 |
| PCPI 6MHZ APPLI-CARD (Z80 CP/M) (BEST Z-80 CARD FOR THE //E | 375.00 | 263.00 |
| MICROSOFT Z-80 SOFTCARD CP/M | 345.00 | 219.00 |
| VIDEX VIDEOTERM 80 COLUMN CARD (SOFTSWITCH, AND INV. CHAR SET) | 319.00 | 199.00 |
| VIDEX ULTRATERM | 379.00 | 225.00 |
| WIZARD GRAPHICS INTERFACE CARDS | | |
| IPI INTERFACE | 88.00 | 69.00 |
| BPO 16K BUFFERED INTERFACE | 179.00 | 129.00 |
| ORANGE GRAPHICS INTERFACE CARDS | | |
| GRAPPLER PLUS | 145.00 | 109.00 |
| BUFFERED GRAPPLER PLUS 16K | 239.00 | 149.00 |
| CCS 7711 SUPER SERIAL CARD (BEST CARD FOR MODEM WORK) | 110.00 | 95.00 |
| MICRO-SCI DISK DRIVES | | |
| A2 APPLE COMPATIBLE | 299.00 | 195.00 |
| A2 DRIVE WITH CONTROLLER | 399.00 | 249.00 |
| A5 HALF-HEIGHT APPLE COMPATIBLE | 310.00 | 205.00 |
| A5 DRIVE WITH CONTROLLER | 410.00 | 259.00 |
| PANASONIC KX-P1091 PRINTER (WILL DO EPSON FX GRAPHICS) | 499.00 | 286.00 |
| KENSINGTON SYSTEM SAVER FAN | 89.95 | 62.00 |
| VISTA A800 8" DISK CONTROLLER | 379.00 | 249.00 |
| **EIGHT INCH DUAL DISK DRIVE SUBSYSTEM WITH CONTROLLER, 2.4MB, SOFTWARE SUPPORT FOR DOS 3.3, APPLE PASCAL, AND CP/M (MICROSOFT SOFTCARD OR PCPI APPLI-CARD)** | **1900.00** | **995.00** |

### ★ SOFTWARE FOR THE APPLE ★

| | | |
|---|---|---|
| PFS: FILE, REPORT, GRAPH, OR WRITE (WRITE FOR //E, OR //C ONLY) EACH | 125.00 | 74.00 |
| THINK TANK (LIVING VIDEOTEXT) | 150.00 | 87.00 |
| DB MASTER VERSION #4 (STONEWARE) | 350.00 | 175.00 |
| MICROSOFT MULTIPLAN (APPLE OR MAC) | 195.00 | 117.00 |
| WORDSTAR WITH CP/M CARD (MICROPRO) (CP/M CARD IS PCPI APPLI-CARD) | 495.00 | 294.00 |
| SCREEN WRITER PRO (ON-LINE) | 129.00 | 79.00 |
| MICROSOFT FORTRAN-80 APPLE CP/M | 195.00 | 117.00 |
| ACSII EXPRESS PROFESSIONAL | 129.00 | 79.00 |
| FANCY FONT PERSONAL TYPESETTER FOR CP/M AND EPSON FX, RX, MX, GEMINI 10X/15X OR PANASONIC 1091 | 180.00 | 150.00 |

If personal check, allow **10 BANKING DAYS for CLEARANCE.**
Prices and specifications subject to change without notice.
Unless otherwise noted, **ALL PRICES are PLUS SHIPPING.**
**SHIPPING & HANDLING — ADD $5.00 UPS SURFACE**
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| 3.5" Fuji | SS/DD Box of 10 | $29.00 | |
| 5-1/4" VF Assoc. Brand | Box of 10 | $9.00 | $11.00 |
| | Pak of 25 | $21.50 | $26.50 |
| | Case of 100 | $83.00 | $103.00 |
| | Carton of 500 | $395.00 | $495.00 |

(Includes hub rings, white Tyvek sleeves, blank labels; thick sturdy diskettes, fully certified error free: surfaces of such high quality they retain data even from drives emitting signals 25% below normal strength!!!!)

DISTAR Disk Drive for II, IIe, IIc . . . $119.00

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Full Feature Printers . . . from $189.00

*COD and Visa/Master Card orders welcome. UPS SHIPPING: $4.00 per order plus $6.00 per printer or monitor.*

LONG DISTANCE: CALL TOLL-FREE FROM ANY TONE-GENERATING PHONE: DIAL 950-1088; (IF YOU RECEIVE A RECORDING, DIAL 800-446-4462 INSTEAD); WAIT FOR TONE: DIAL 363-1313.

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# Now Your Computer Can See!

## $295.00*

**A total imaging system complete and ready for plug-and-go operation with your personal computer.**

MicronEye™ "Bullet"

The MicronEye™ offers selectable resolution modes of 256 x 128 and 128 x 64 with operating speeds up to 15 FPS. An electronic shutter is easily controlled by software or manual functions, and the included sample programs allow you to continuously scan, freeze frame, frame store, frame compare, print and produce pictures in shades of grey from the moment you begin operation.

Only the MicronEye™ uses the revolutionary IS32 OpticRAM™ image sensor for automatic solid state image digitizing, with capability for grey-tone imaging through multiple scans. And with these features, the MicronEye™ is perfectly suited for graphics input, robotics, text and pattern recognition, security, digitizing, automated process control and many other applications.

The MicronEye™ is available with immediate delivery for these computers: Apple II, IBM PC, Commodore 64 and the TRS-80CC (trademarks of Apple Computer Inc., International Business Machines, Commodore Corp., and Tandy Corp. respectively).

Phone for MicronEye™ information on the Macintosh, TI PC and RS232 (trademarks of Apple Computer Inc. and Texas Instruments respectively.)

*(Add $10.00 for shipping and handling [Federal Express Standard Air]; residents of the following states *must add sales tax:* AK, AZ, CA, CO, CT, FL, GA, IA, ID, IL, IN, LA, MA, MD, ME, MI, MN, NC, NE, NJ, NY, OH, PA, SC, TN, TX, UT, VA, VT, WA, WI.)

MICRON TECHNOLOGY, INC.

SYSTEMS GROUP
1475 Tyrell Lane
Boise, Idaho 83706
(208) 386-3800
TWX 910-970-5973

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# New Products

## ADVANCED COMPOSER'S TOOL

Deluxe Music Construction Set, is now available for Apple's Macintosh. It is a music composition tool which can be used to compose professional-quality music, listen to it, and print it out as sheet music. Novices and intermediate musicians can also use it to learn musical and composition skills.

In operation at the most basic level, the musician can play the sample music provided to get a feel for how the system works, practicing by changing existing parameters. Full control is available with the mouse and from keyboard commands. An on-screen piano keyboard can be used to enter notes and flashes to show keys being pressed as they are entered or played. On-screen notes can also be set to do the same thing.

Once the user is comfortable with the workings of Deluxe Music Construction Set, he or she can copy music from sheet music, modify it in many ways, rescore it, change tempo and instruments, or just listen to it while watching it play on the screen. Original music is handled in the same fashion.

When the composition is just right, the musician can print it out with lyrics and special notations (such as guitar chords) in place. The number of staffs may be specified, all the note connections indicated, and all symbols can be repositioned as necessary for a finished, professional looking score.

Price: $50.00, *Electronic Arts, 2755 Campus Drive, San Mateo, CA 94403, (415) 571-7171.* Circle 34 on Reader Service Card

## SECURITY FOR MAC

TOSH protects your entire Macintosh system from theft and unauthorized use. The unique tilting feature allows you to adjust your Macintosh for comfortable viewing and provides access to your keyboard and mouse stored below. All steel construction, the TOSH is also available with voltage surge protection and second disk drive.

Price $179.95. *Doss Industries, 1224 Mariposa Street, San Francisco, CA 94107, *(415) 681-2223.* Circle 35 on Reader Service Card

## KEEP YOUR DESKTOP NEATER

THE DESK ORGANIZER turns the Macintosh into a complete desk management system. It fits perfectly into both the Macintosh Office and the Macintosh home. It runs on both models of the Macintosh. A special capability for the 512K model enables users to switch instantly between THE DESK ORGANIZER and other Macintosh software.

THE DESK ORGANIZER allows professionals, executives, managers and secretaries to work skillfully and quickly with large amounts of unstructured detail and time consuming tasks—with a single press of a button.

The retail price is $99. *WARNER SOFTWARE, INC., 666 Fifth Avenue, New York, NY 10103 (212) 484-3070.* Circle 36 on Reader Service Card

# MIND·CASTLE I

## An exciting, motivating and challenging logic adventure game.

For Apple II plus, IIe and IIc computers.

THE OBJECTIVE:
The Castle has several floors with 44 rooms. Your task is to get to the treasure in the Castle Tower. Over 100 graphics keep you moving within the Castle. Solve the logic problems and advance toward the treasure.

Acclaimed by educators nationally.

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■ **Super Serial Imager™:** This powerful new card replaces Apple's own Super Serial Card as the best RS-232 interface available for Apple // computers. In terminal mode, Imager's powerful built in communications firmware contains interrupt support for trouble free operation at 300-1200 baud and beyond with special support of most intelligent modems. In printer mode, it's a full featured graphics interface. Support provides full screen dumps to Apple Imagewriter printers and most serial interfaced graphics printers. Command compatible with graphics card described below.

■ **Graphics Printer Interface:** A potent graphics output card for parallel printers. Pictures and graphs from the hi-res screen as well as snapshots of the 40/80 column text screen are performed with a simple print command. Contains Grappler+ command set as subset for software compatibility.

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80 COLUMN VIDEO DISPLAY:
Expandable video display card for the Apple //e. Available in both standard and 64k versions. Standard version may be upgraded to an extended card with the addition of memory in slots provided.
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The standard interface for parallel printers. Features DIP switch selectable options.
EXTEND-IT:
64K add on board piggy-backs Apple's standard 80 Column Text Card. Expands Apple IIe™ to 128K, maintaining full compatibility with Apple's Extended 80 Column Text Card.
16K RAM EXPANSION:
The standard memory card for the Apple ][ and Apple ][+ computers. Compatible with the Apple Language Card and the Microsoft RAMCard.
SUPER SERIAL IMAGER:
Apple Super Serial Interface Compatible. Full featured Graphics Interface with powerful built-in communications.

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